

FCC TEST REPORT

REPORT NO.: RF940712L04

MODEL NO.: WMD-360A

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ISSUED: Aug. 04, 2005

APPLICANT: U-MEDIA Communications, Inc.

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TABLE OF CONTENTS

1.	CERTIFICATION	5
2.	SUMMARY OF TEST RESULTS	6
2.1	MEASUREMENT UNCERTAINTY	7
3.	GENERAL INFORMATION	8
3.1	GENERAL DESCRIPTION OF EUT	8
3.2	DESCRIPTION OF TEST MODES.....	9
3.2.1	CONFIGURATION OF SYSTEM UNDER TEST	10
3.2.2	TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL.....	11
3.3	GENERAL DESCRIPTION OF APPLIED STANDARDS	16
3.4	DESCRIPTION OF SUPPORT UNITS	16
4.	TEST TYPES AND RESULTS (FOR SINGLE CHAIN (TX))	17
4.1	CONDUCTED EMISSION MEASUREMENT	17
4.1.1	LIMITS OF CONDUCTED EMISSION MEASUREMENT	17
4.1.2	TEST INSTRUMENTS	17
4.1.3	TEST PROCEDURES	18
4.1.4	DEVIATION FROM TEST STANDARD.....	18
4.1.5	TEST SETUP	19
4.1.6	EUT OPERATING CONDITIONS.....	19
4.1.7	TEST RESULTS	20
4.2	RADIATED EMISSION MEASUREMENT.....	28
4.2.1	LIMITS OF RADIATED EMISSION MEASUREMENT.....	28
4.2.2	TEST INSTRUMENTS	29
4.2.3	TEST PROCEDURES	30
4.2.4	DEVIATION FROM TEST STANDARD.....	31
4.2.5	TEST SETUP	31
4.2.6	EUT OPERATING CONDITIONS.....	31
4.2.7	TEST RESULTS	32
4.3	6dB BANDWIDTH MEASUREMENT.....	55
4.3.1	LIMITS OF 6dB BANDWIDTH MEASUREMENT.....	55
4.3.2	TEST INSTRUMENTS.....	55
4.3.3	TEST PROCEDURE.....	56
4.3.4	DEVIATION FROM TEST STANDARD.....	56
4.3.5	TEST SETUP	56
4.3.6	EUT OPERATING CONDITIONS.....	56
4.3.7	TEST RESULTS	57
4.4	MAXIMUM PEAK OUTPUT POWER	65
4.4.1	LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT.....	65
4.4.2	TEST INSTRUMENTS.....	65
4.4.3	TEST PROCEDURES	66
4.4.4	DEVIATION FROM TEST STANDARD.....	66
4.4.5	TEST SETUP	66
4.4.6	EUT OPERATING CONDITIONS.....	66
4.4.7	TEST RESULTS	67
4.5	POWER SPECTRAL DENSITY MEASUREMENT.....	69
4.5.1	LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT.....	69
4.5.2	TEST INSTRUMENTS.....	69



4.5.3	TEST PROCEDURE.....	70
4.5.4	DEVIATION FROM TEST STANDARD.....	70
4.5.5	TEST SETUP	70
4.5.6	EUT OPERATING CONDITIONS.....	70
4.5.7	TEST RESULTS	71
4.6	BAND EDGES MEASUREMENT	79
4.6.1	LIMITS OF BAND EDGES MEASUREMENT	79
4.6.2	TEST INSTRUMENTS.....	79
4.6.3	TEST PROCEDURE.....	79
4.6.4	DEVIATION FROM TEST STANDARD.....	79
4.6.5	EUT OPERATING CONDITION	79
4.6.6	TEST RESULTS	80
5.	TEST TYPES AND RESULTS (FOR DUAL CHAIN (TX)).....	95
5.1	CONDUCTED EMISSION MEASUREMENT.....	95
5.1.1	LIMITS OF CONDUCTED EMISSION MEASUREMENT.....	95
5.1.2	TEST INSTRUMENTS.....	95
5.1.3	TEST PROCEDURES	96
5.1.4	DEVIATION FROM TEST STANDARD.....	96
5.1.5	TEST SETUP	97
5.1.6	EUT OPERATING CONDITIONS.....	97
5.1.7	TEST RESULTS	98
5.2	RADIATED EMISSION MEASUREMENT.....	106
5.2.1	LIMITS OF RADIATED EMISSION MEASUREMENT.....	106
5.2.2	TEST INSTRUMENTS.....	107
5.2.3	TEST PROCEDURES	108
5.2.4	DEVIATION FROM TEST STANDARD.....	109
5.2.5	TEST SETUP	109
5.2.6	EUT OPERATING CONDITIONS.....	109
5.2.7	TEST RESULTS	110
5.3	6dB BANDWIDTH MEASUREMENT.....	129
5.3.1	LIMITS OF 6dB BANDWIDTH MEASUREMENT.....	129
5.3.2	TEST INSTRUMENTS.....	129
5.3.3	TEST PROCEDURE.....	130
5.3.4	DEVIATION FROM TEST STANDARD.....	130
5.3.5	TEST SETUP	130
5.3.6	EUT OPERATING CONDITIONS.....	130
5.3.7	TEST RESULTS	131
5.4	MAXIMUM PEAK OUTPUT POWER	137
5.4.1	LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT.....	137
5.4.2	TEST INSTRUMENTS.....	137
5.4.3	TEST PROCEDURES	138
5.4.4	DEVIATION FROM TEST STANDARD.....	138
5.4.5	TEST SETUP	138
5.4.6	EUT OPERATING CONDITIONS.....	138
5.4.7	TEST RESULTS	139
5.5	POWER SPECTRAL DENSITY MEASUREMENT.....	140
5.5.1	LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT.....	140
5.5.2	TEST INSTRUMENTS.....	140
5.5.3	TEST PROCEDURE.....	141



5.5.4	DEVIATION FROM TEST STANDARD.....	141
5.5.5	TEST SETUP	141
5.5.6	EUT OPERATING CONDITIONS.....	141
5.5.7	TEST RESULTS	142
5.6	BAND EDGES MEASUREMENT	148
5.6.1	LIMITS OF BAND EDGES MEASUREMENT	148
5.6.2	TEST INSTRUMENTS	148
5.6.3	TEST PROCEDURE.....	149
5.6.4	DEVIATION FROM TEST STANDARD.....	149
5.6.5	EUT OPERATING CONDITION	149
5.6.6	TEST RESULTS	150
5.7	ANTENNA REQUIREMENT	166
5.7.1	STANDARD APPLICABLE	166
5.7.2	ANTENNA CONNECTED CONSTRUCTION	166
6.	PHOTOGRAPHS OF THE TEST CONFIGURATION.....	167
7.	INFORMATION ON THE TESTING LABORATORIES	173



1. CERTIFICATION

PRODUCT: 802.11g Wireless MIMO miniPCI Module
MODEL NO.: WMD-360A
BRAND: U-MEDIA
APPLICANT: U-MEDIA Communications, Inc.
TESTED: Jul. 19 ~ 25, 2005
TEST SAMPLE: ENGINEERING SAMPLE
STANDARDS: FCC Part 15, Subpart C (Section 15.247),
ANSI C63.4-2003

The above equipment has been tested by **Advance Data Technology Corporation**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

PREPARED BY : Rennie Wang , **DATE:** Aug. 04, 2005
Rennie Wang

TECHNICAL
ACCEPTANCE : Gary Chang , **DATE:** Aug. 04, 2005
Responsible for RF Gary Chang

APPROVED BY : Cody Chang , **DATE:** Aug. 04, 2005
Cody Chang / Deputy Manager

2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC Part 15, Subpart C			
STANDARD SECTION	TEST TYPE AND LIMIT	RESULT	REMARK
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -14.06dB at 0.216MHz.
15.247(a)(2)	Spectrum Bandwidth of a Direct Sequence Spread Spectrum System Limit : min. 500kHz	PASS	Meet the requirement of limit.
15.247(b)	Maximum Peak Output Power Limit: max. 30dBm	PASS	Meet the requirement of limit.
15.247(d)	Transmitter Radiated Emissions Limit: Table 15.209	PASS	Meet the requirement of limit. Minimum passing margin is -1.75dB at 2483.50MHz.
15.247(e)	Power Spectral Density Limit: max. 8dBm	PASS	Meet the requirement of limit.
15.247(d)	Band Edge Measurement Limit: 20 dB less than the peak value of fundamental frequency	PASS	Meet the requirement of limit.

2.1 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4:

MEASUREMENT	FREQUENCY	UNCERTAINTY
Conducted emissions	9kHz ~ 30MHz	2.44 dB
Radiated emissions	30MHz ~ 200MHz	3.73 dB
	200MHz ~ 1000MHz	3.74 dB
	1GHz ~ 18GHz	2.20 dB
	18GHz ~ 40GHz	1.88 dB

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$.

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	802.11g Wireless MIMO miniPCI Module
MODEL NO.	WMD-360A
POWER SUPPLY	3.3Vdc from host equipment
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
MODULATION TECHNOLOGY	DSSS, OFDM
TRANSFER RATE	802.11b: 11/5.5/2/1Mbps 802.11g: 54/48/36/24/18/12/9/6MBPS (Turbo mode: up to 108Mbps)
FREQUENCY RANGE	2412MHz ~ 2462MHz
NUMBER OF CHANNEL	11 for Normal mode / 1 for Turbo mode
MAXIMUM OUTPUT POWER (SINGAL CHAIN)	40.644mW
MAXIMUM OUTPUT POWER (DUAL CHAIN)	64.126mW
ANTENNA TYPE	Refer to NOTE 1 below
DATA CABLE	NA
I/O PORTS	NA
ASSOCIATED DEVICES	NA

NOTE:

- Two sets of antenna were provided to this EUT for the test.

SET	ANTENNA TYPE		ANTENNA GAIN (dBi)		REMARK
1	Dipole	Printed	4.00	3.11	Both printed antennas were fixed on the PCB. Both dipole antennas were also fixed, and have 15cm space.
2	Dipole		4.00		Both dipole antennas were in parallel, and have 15cm space.

- The EUT was designed with two versions. The difference is for flash function. After pre-testing, module with flash function was the worst case and chosen for final test.
- The EUT incorporates a basic beam forming capability. Physically, the card provides two complete transmit and receive chains.
- The EUT can operate in a single chain configuration (only the chain 0 transceiver is operational) or dual chain configuration (both chain 0 and chain 1 transceivers are operational).
- When the EUT is in the 802.11b mode, it is always in the single chain configuration.



6. When the EUT is operating in the 802.11g mode, it can operate in either configuration. Switching between the single and dual chain configurations is accomplished electronically, with no hardware changes required.
7. The EUT complies with IEEE 802.11g standards and backwards compatible with IEEE 802.11b products.
8. The EUT operates in the 2.4GHz frequency spectrum with throughput of up to 54Mbps.
9. This EUT is capable of providing data rates of up to 108 Mbps in Turbo mode depending upon reception quality.
10. The above EUT information was declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or User's Manual.

3.2 DESCRIPTION OF TEST MODES

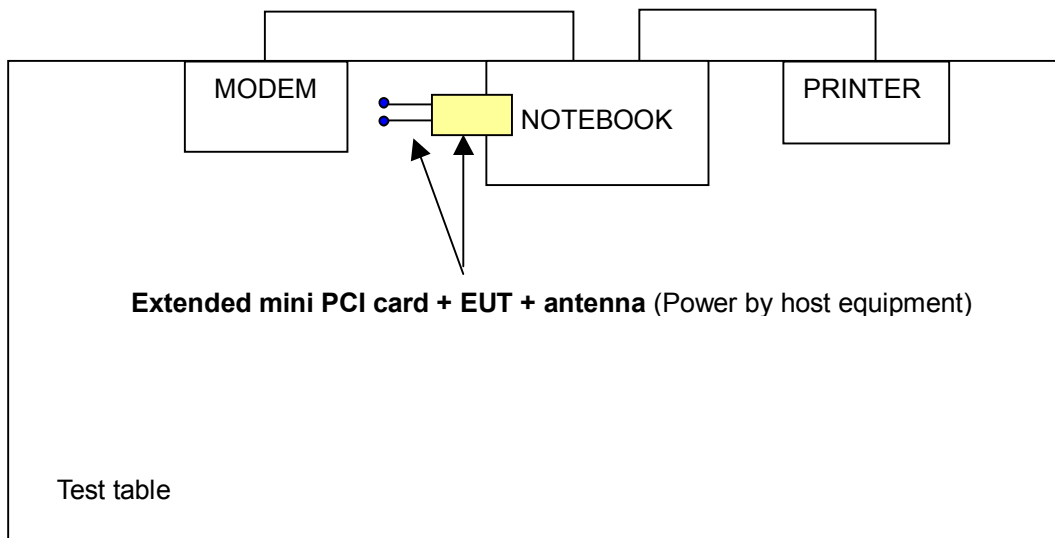
For 802.11b/g: Eleven channels are provided to this EUT for normal mode.

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
1	2412 MHz	7	2442 MHz
2	2417 MHz	8	2447 MHz
3	2422 MHz	9	2452 MHz
4	2427 MHz	10	2457 MHz
5	2432 MHz	11	2462 MHz
6	2437 MHz		

For 802.11g: One channel is provided to this EUT for turbo mode.

CHANNEL	FREQUENCY
6	2437 MHz

3.2.1 CONFIGURATION OF SYSTEM UNDER TEST



3.2.2 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

FOR SINGLE CHAIN (TX):

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	PLC	RE<1G	RE≥1G	APCM	
1	NOTE 1	√	√	NOTE 2	Dipole and Printed antenna
2	NOTE 1	√	√	NOTE 2	Dipole antenna

Where **PLC:** Power Line Conducted Emission

RE<1G RE: Radiated Emission below 1GHz

RE≥1G: Radiated Emission above 1GHz

APCM: Antenna Port Conducted Measurement

Note 1: No effect on Power Line Conducted Emission test

Note 2: No effect on Antenna Port Conducted Measurement test

POWER LINE CONDUCTED EMISSION TEST:

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
1	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6
1	802.11g turbo	6	6	OFDM	BPSK	12

**RADIATED EMISSION TEST (BELOW 1 GHz):**

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
1	802.11b	1 to 11	11	DSSS	BPSK	1
2	802.11b	1 to 11	11	DSSS	BPSK	1
1	802.11g	1 to 11	11	OFDM	BPSK	6
2	802.11g	1 to 11	11	OFDM	BPSK	6
1	802.11g turbo	6	6	OFDM	BPSK	12
2	802.11g turbo	6	6	OFDM	BPSK	12

RADIATED EMISSION TEST (ABOVE 1 GHz):

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
1	802.11b	1 to 11	1, 6, 11	DSSS	BPSK	1
2	802.11b	1 to 11	1, 6, 11	DSSS	BPSK	1
1	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6
2	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6
1	802.11g turbo	6	6	OFDM	BPSK	12
2	802.11g turbo	6	6	OFDM	BPSK	12

BANDEDGE MEASUREMENT:

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	1, 11	DSSS	BPSK	1
802.11g	1 to 11	1, 11	OFDM	BPSK	6
802.11g turbo	6	6	OFDM	BPSK	12

ANTENNA PORT CONDUCTED MEASUREMENT:

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	1, 6, 11	DSSS	BPSK	1
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6
802.11g turbo	6	6	OFDM	BPSK	12

FOR DUAL CHAIN (TX):

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	PLC	RE<1G	RE≥1G	APCM	
1	NOTE 1	√	√	NOTE 2	Dipole and Printed antenna
2	NOTE 1	√	√	NOTE 2	Dipole antenna

Where **PLC**: Power Line Conducted Emission
RE≥1G: Radiated Emission above 1GHz

RE<1G RE: Radiated Emission below 1GHz
APCM: Antenna Port Conducted Measurement

Note 1: No effect on Power Line Conducted Emission test

Note 2: No effect on Antenna Port Conducted Measurement test

POWER LINE CONDUCTED EMISSION TEST:

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, chain 1 phase (0° ~ 360°) and antenna ports (if EUT with antenna diversity architecture).

- ☒ Following channel(s) was (were) selected for the final test as listed below.

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	CHAIN 1 PHASE
1	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6	0°
1	802.11g turbo	6	6	OFDM	BPSK	12	0°

RADIATED EMISSION TEST (BELOW 1 GHz):

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, chain 1 phase (0° ~ 360°) and antenna ports (if EUT with antenna diversity architecture).

- ☒ Following channel(s) was (were) selected for the final test as listed below.

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	CHAIN 1 PHASE
1	802.11g	1 to 11	11	OFDM	BPSK	6	0°
2	802.11g	1 to 11	11	OFDM	BPSK	6	0°
1	802.11g turbo	6	6	OFDM	BPSK	12	0°
2	802.11g turbo	6	6	OFDM	BPSK	12	0°

RADIATED EMISSION TEST (ABOVE 1 GHz):

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, chain 1 phase (0° ~ 360°) and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	CHAIN 1 PHASE
1	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6	0°
2	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6	0°
1	802.11g turbo	6	6	OFDM	BPSK	12	0°
2	802.11g turbo	6	6	OFDM	BPSK	12	0°

BANDEDGE MEASUREMENT:

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, chain 1 phase (0° ~ 360°) and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	CHAIN 1 PHASE
1	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6	0°
1	802.11g turbo	6	6	OFDM	BPSK	12	0°
2	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6	0°
2	802.11g turbo	6	6	OFDM	BPSK	12	0°

ANTENNA PORT CONDUCTED MEASUREMENT:

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, chain 1 phase (0° ~ 360°) and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	CHAIN 1 PHASE
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6	0°
802.11g turbo	6	6	OFDM	BPSK	12	0°

3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a 802.11g Wireless MIMO miniPCI Module. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC Part 15, Subpart C. (15.247)

ANSI C63.4-2003

All test items have been performed and recorded as per the above standards.

NOTE: The EUT is also considered as a kind of computer peripheral, because the connection to computer is necessary for typical use. It has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (DoC). The test report has been issued separately.

3.4 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK COMPUTER	DELL	PP05L	16484462992	E2K24CLNS
2	MODEM	ACEEX	1414V/3	0401008269	IFAXDM1414
3	PRINTER	EPSON	LQ-300+	DCGY054147	FCC DoC Approved

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	1.8m shielded cable with 2 cores.
2	1.2m shielded cable without core.
3	1.2 m braid shielded wire, terminated with DB25 and DB9 connector via metallic frame, w/o core.

NOTE: All power cords of the above support units are non shielded (1.8m).

4. TEST TYPES AND RESULTS (FOR SINGLE CHAIN (TX))

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dB μ V)	
	Quasi-peak	Average
0.15 ~ 0.5	66 to 56	56 to 46
0.5 ~ 5	56	46
5 ~ 30	60	50

- NOTE:**
1. The lower limit shall apply at the transition frequencies.
 2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.
 3. All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
Test Receiver ROHDE & SCHWARZ	ESCS30	100288	Nov. 06, 2005
RF signal cable Woken	5D-FB	Cable-HyC02-01	Jan. 09, 2006
LISN ROHDE & SCHWARZ	ESH2-Z5	100100	Jan. 20, 2006
LISN ROHDE & SCHWARZ	ESH3-Z5	100311	Jan. 20, 2006
Software ADT	ADT_Cond_V3	NA	NA

- NOTE:**
1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
 2. The test was performed in HwaYa Shielded Room 3.
 3. The VCCI Site Registration No. is C-2047.



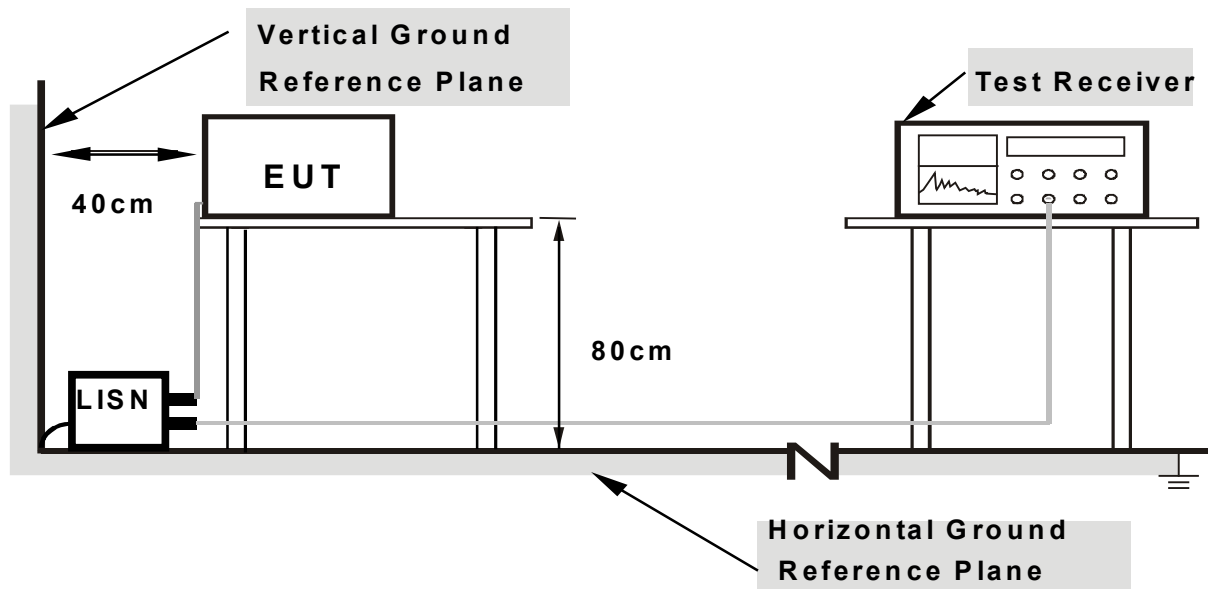
4.1.3 TEST PROCEDURES

- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

4.1.4 DEVIATION FROM TEST STANDARD

No deviation

4.1.5 TEST SETUP



Note: 1.Support units were connected to second LISN.

2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

4.1.6 EUT OPERATING CONDITIONS

- Connected the EUT into the notebook system and placed on a testing table.
- The notebook system ran a test program (provided by manufacturer) to enable EUT under transmission/receiving condition continuously at specific channel frequency.
- The notebook system show "H" messages on its screen.
- The notebook system show "H" messages to modem.
- The notebook system sent "H" messages to printer and the printer prints them on paper.
- Repeated item c ~e.

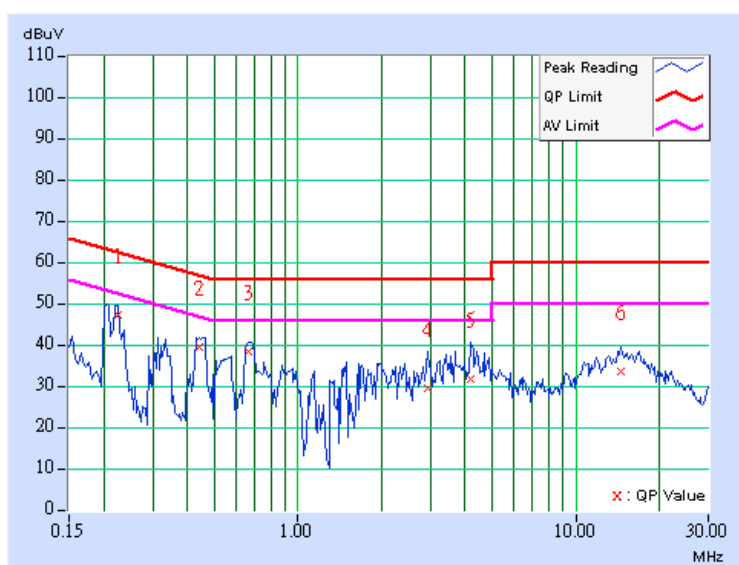
4.1.7 TEST RESULTS

CONDUCTED WORST CASE DATA_NORMAL MODE

EUT	802.11g Wireless MIMO miniPCI Module	MEASUREMENT DETAIL	
MODEL	WMD-360A	PHASE	Line 1
CHANNEL	Channel 1	6dB BANDWIDTH	9 kHz
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 991hPa
TRANSFER RATE	6Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TESTED BY	Match Tsui		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.224	0.10	47.09	-	47.19	-	62.66	52.66	-15.47	-
2	0.443	0.11	39.22	-	39.33	-	57.01	47.01	-17.68	-
3	0.666	0.14	37.98	-	38.12	-	56.00	46.00	-17.88	-
4	2.934	0.20	29.15	-	29.35	-	56.00	46.00	-26.65	-
5	4.199	0.20	31.63	-	31.83	-	56.00	46.00	-24.17	-
6	14.523	0.39	33.48	-	33.87	-	60.00	50.00	-26.13	-

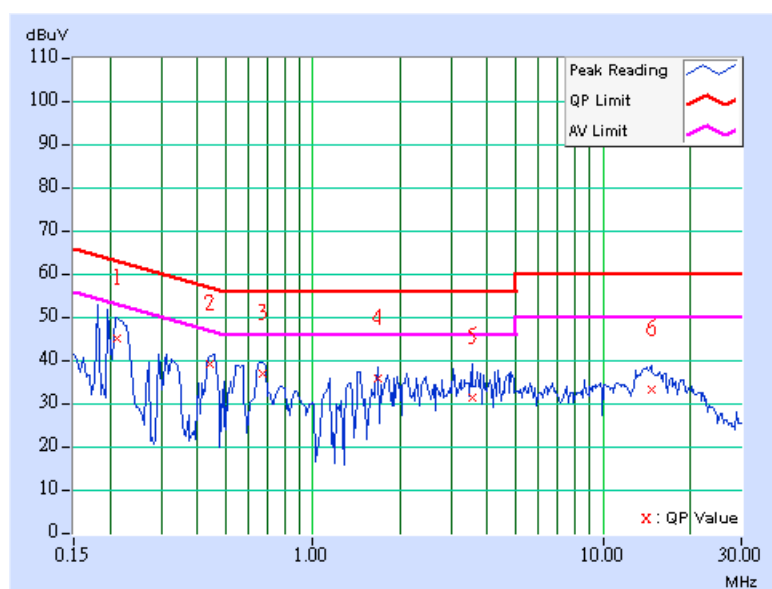
- REMARKS:** 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Correction factor = Insertion loss + Cable loss
6. Emission Level = Correction Factor + Reading Value.



EUT	802.11g Wireless MIMO miniPCI Module	MEASUREMENT DETAIL	
MODEL	WMD-360A	PHASE	Line 2
CHANNEL	Channel 1	6dB BANDWIDTH	9 kHz
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 991hPa
TRANSFER RATE	6Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TESTED BY	Match Tsui		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.213	0.10	44.74	-	44.84	-	63.11	53.11	-18.27	-
2	0.443	0.11	38.84	-	38.95	-	57.01	47.01	-18.06	-
3	0.673	0.15	36.69	-	36.84	-	56.00	46.00	-19.16	-
4	1.680	0.20	35.52	-	35.72	-	56.00	46.00	-20.28	-
5	3.543	0.20	31.05	-	31.25	-	56.00	46.00	-24.75	-
6	14.652	0.49	32.70	-	33.19	-	60.00	50.00	-26.81	-

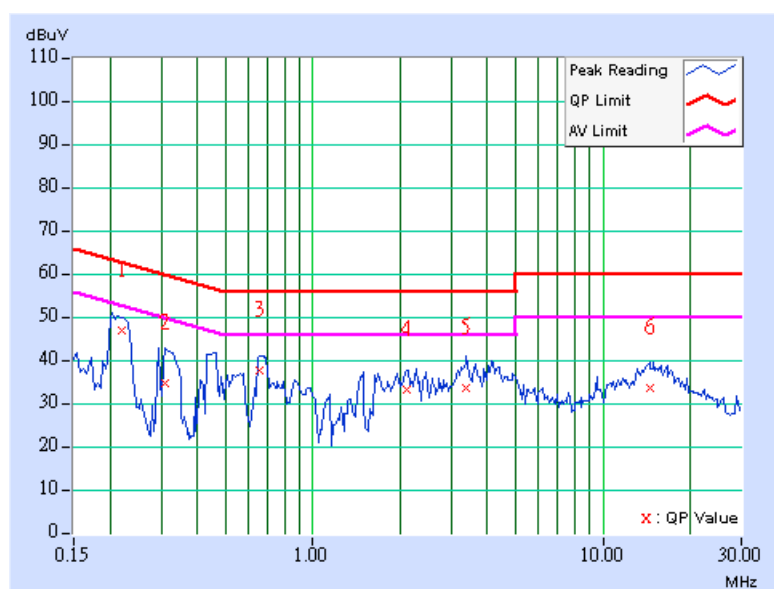
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



EUT	802.11g Wireless MIMO miniPCI Module	MEASUREMENT DETAIL	
MODEL	WMD-360A	PHASE	Line 1
CHANNEL	Channel 6	6dB BANDWIDTH	9 kHz
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 991hPa
TRANSFER RATE	6Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TESTED BY	Match Tsui		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.220	0.10	46.70	-	46.80	-	62.81	52.81	-16.01	-
2	0.310	0.10	34.48	-	34.58	-	59.97	49.97	-25.39	-
3	0.654	0.14	37.26	-	37.40	-	56.00	46.00	-18.60	-
4	2.117	0.20	32.99	-	33.19	-	56.00	46.00	-22.81	-
5	3.387	0.20	33.30	-	33.50	-	56.00	46.00	-22.50	-
6	14.457	0.39	33.46	-	33.85	-	60.00	50.00	-26.15	-

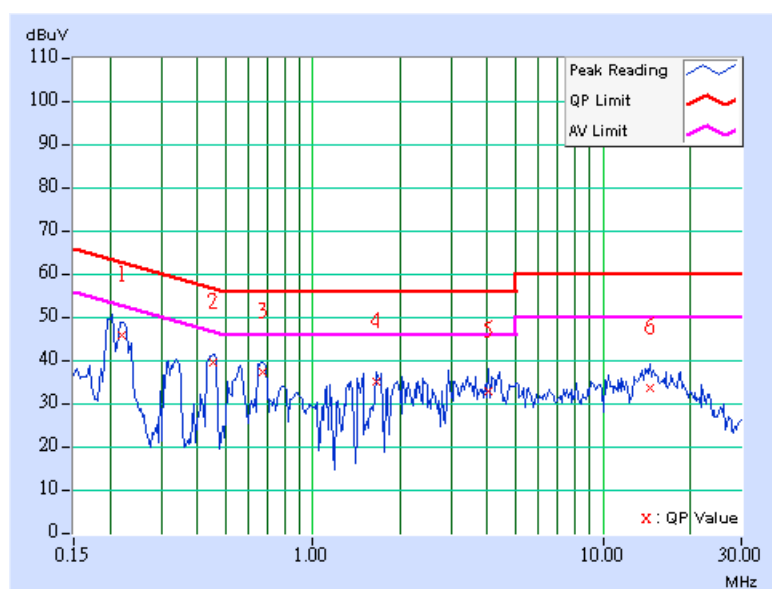
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



EUT	802.11g Wireless MIMO miniPCI Module	MEASUREMENT DETAIL	
MODEL	WMD-360A	PHASE	Line 2
CHANNEL	Channel 6	6dB BANDWIDTH	9 kHz
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 991hPa
TRANSFER RATE	6Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TESTED BY	Match Tsui		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.220	0.10	45.44	-	45.54	-	62.81	52.81	-17.27	-
2	0.455	0.11	39.18	-	39.29	-	56.79	46.79	-17.50	-
3	0.673	0.15	36.80	-	36.95	-	56.00	46.00	-19.05	-
4	1.664	0.20	34.76	-	34.96	-	56.00	46.00	-21.04	-
5	4.027	0.20	32.62	-	32.82	-	56.00	46.00	-23.18	-
6	14.520	0.49	33.10	-	33.59	-	60.00	50.00	-26.41	-

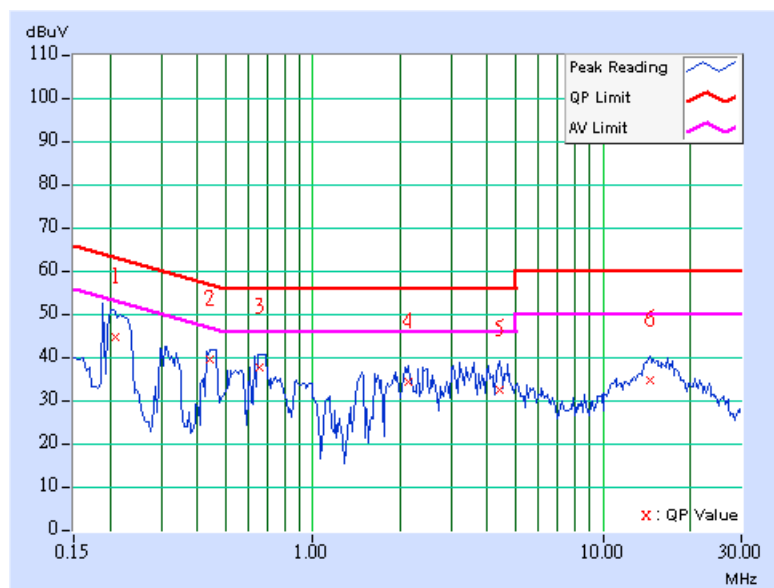
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



EUT	802.11g Wireless MIMO miniPCI Module	MEASUREMENT DETAIL	
MODEL	WMD-360A	PHASE	Line 1
CHANNEL	Channel 11	6dB BANDWIDTH	9 kHz
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 991hPa
TRANSFER RATE	6Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TESTED BY	Match Tsui		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.209	0.10	44.32	-	44.42	-	63.26	53.26	-18.84	-
2	0.443	0.11	39.16	-	39.27	-	57.01	47.01	-17.74	-
3	0.658	0.14	37.50	-	37.64	-	56.00	46.00	-18.36	-
4	2.133	0.20	33.97	-	34.17	-	56.00	46.00	-21.83	-
5	4.391	0.21	32.10	-	32.31	-	56.00	46.00	-23.69	-
6	14.457	0.39	34.30	-	34.69	-	60.00	50.00	-25.31	-

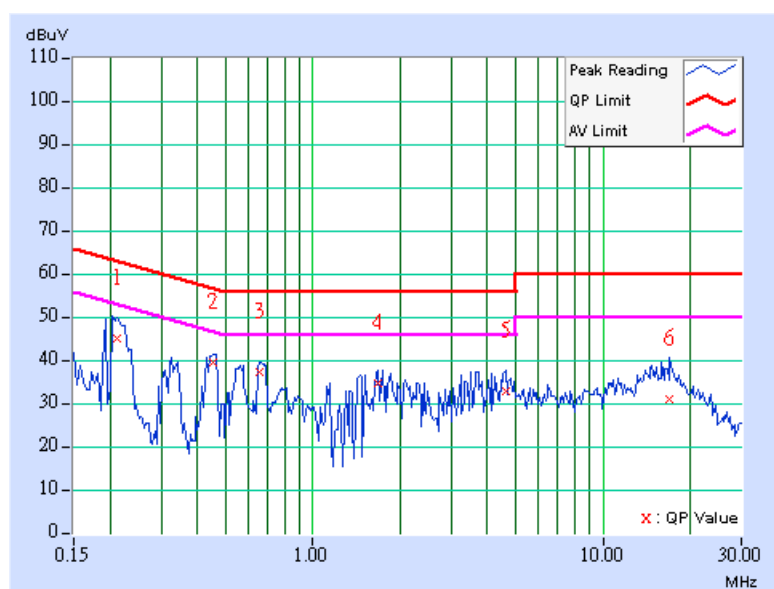
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



EUT	802.11g Wireless MIMO miniPCI Module	MEASUREMENT DETAIL	
MODEL	WMD-360A	PHASE	Line 2
CHANNEL	Channel 11	6dB BANDWIDTH	9 kHz
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 991hPa
TRANSFER RATE	6Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TESTED BY	Match Tsui		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.213	0.10	44.43	-	44.53	-	63.11	53.11	-18.58	-
2	0.455	0.11	39.14	-	39.25	-	56.79	46.79	-17.54	-
3	0.654	0.14	36.62	-	36.76	-	56.00	46.00	-19.24	-
4	1.680	0.20	34.21	-	34.41	-	56.00	46.00	-21.59	-
5	4.609	0.22	32.24	-	32.46	-	56.00	46.00	-23.54	-
6	17.027	0.62	30.34	-	30.96	-	60.00	50.00	-29.04	-

- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.

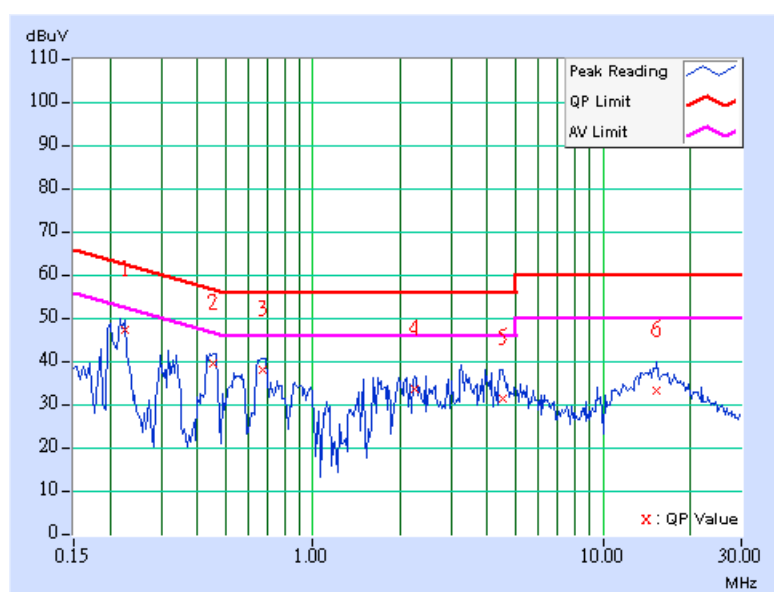


CONDUCTED WORST CASE DATA_TURBO MODE

EUT	802.11g Wireless MIMO miniPCI Module	MEASUREMENT DETAIL	
MODEL	WMD-360A	PHASE	Line 1
CHANNEL	Channel 6	6dB BANDWIDTH	9 kHz
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 991hPa
TRANSFER RATE	12Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TESTED BY	Match Tsui		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.224	0.10	46.88	-	46.98	-	62.66	52.66	-15.68	-
2	0.451	0.11	39.12	-	39.23	-	56.86	46.86	-17.63	-
3	0.670	0.14	37.83	-	37.97	-	56.00	46.00	-18.03	-
4	2.246	0.20	33.32	-	33.52	-	56.00	46.00	-22.48	-
5	4.492	0.21	31.04	-	31.25	-	56.00	46.00	-24.75	-
6	15.273	0.42	32.90	-	33.32	-	60.00	50.00	-26.68	-

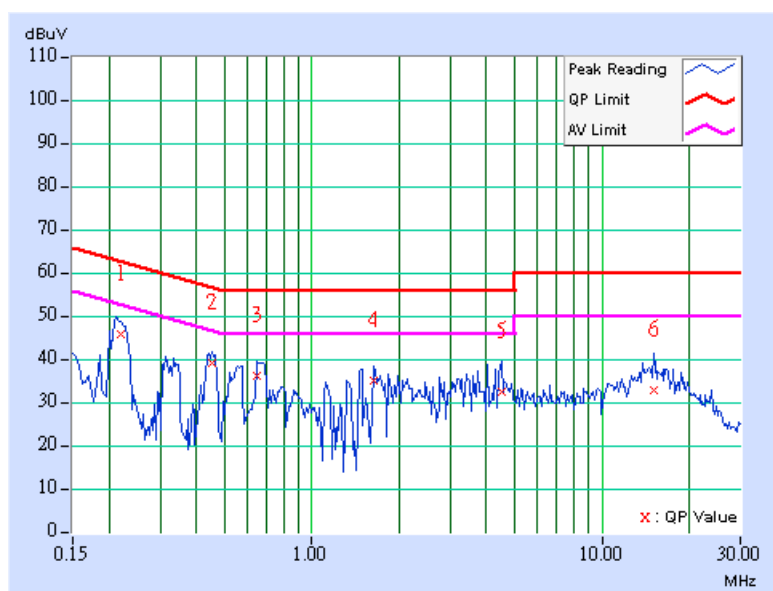
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



EUT	802.11g Wireless MIMO miniPCI Module	MEASUREMENT DETAIL	
MODEL	WMD-360A	PHASE	Line 2
CHANNEL	Channel 6	6dB BANDWIDTH	9 kHz
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 991hPa
TRANSFER RATE	12Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TESTED BY	Match Tsui		

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.220	0.10	45.52	-	45.62	-	62.81	52.81	-17.19	-
2	0.451	0.11	38.62	-	38.73	-	56.86	46.86	-18.13	-
3	0.650	0.14	35.73	-	35.87	-	56.00	46.00	-20.13	-
4	1.641	0.20	34.61	-	34.81	-	56.00	46.00	-21.19	-
5	4.508	0.22	31.92	-	32.14	-	56.00	46.00	-23.86	-
6	15.145	0.51	32.43	-	32.94	-	60.00	50.00	-27.06	-

- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



4.2 RADIATED EMISSION MEASUREMENT

4.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

Emissions radiated outside of the specified bands, shall be according to the general radiated limits in 15.209 as following:

FREQUENCIES (MHz)	FIELD STRENGTH (microvolts/meter)	MEASUREMENT DISTANCE (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

NOTE:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.



4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
Test Receiver ROHDE & SCHWARZ	ESIB7	100188	Dec. 19, 2005
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100039	Nov. 21, 2005
BILOG Antenna SCHWARZBECK	VULB9168	9168-157	Jan. 22, 2006
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-407	Jan. 16, 2006
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA 9170241	Feb. 23, 2006
Preamplifier Agilent	8449B	3008A01961	Nov. 09, 2005
Preamplifier Agilent	8447D	2944A10629	Nov. 09, 2005
RF signal cable HUBER+SUHNER	SUCOFLEX 104	218182/4	Feb. 17, 2006
RF signal cable HUBER+SUHNER	SUCOFLEX 104	218194/4	Feb. 17, 2006
Software ADT.	ADT_Radiated_V5.14	NA	NA
Antenna Tower ADT.	AT100	AT93021702	NA
Turn Table ADT.	TT100.	TT93021702	NA
Controller ADT.	SC100.	SC93021702	NA

- NOTE:**
1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
 2. The test was performed in HwaYa Chamber 1.
 3. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
 4. The IC Site Registration No. is IC4924-2.

4.2.3 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions would be re-tested one by one using peak, quasi-peak method or average method as specified and then reported in data sheet.

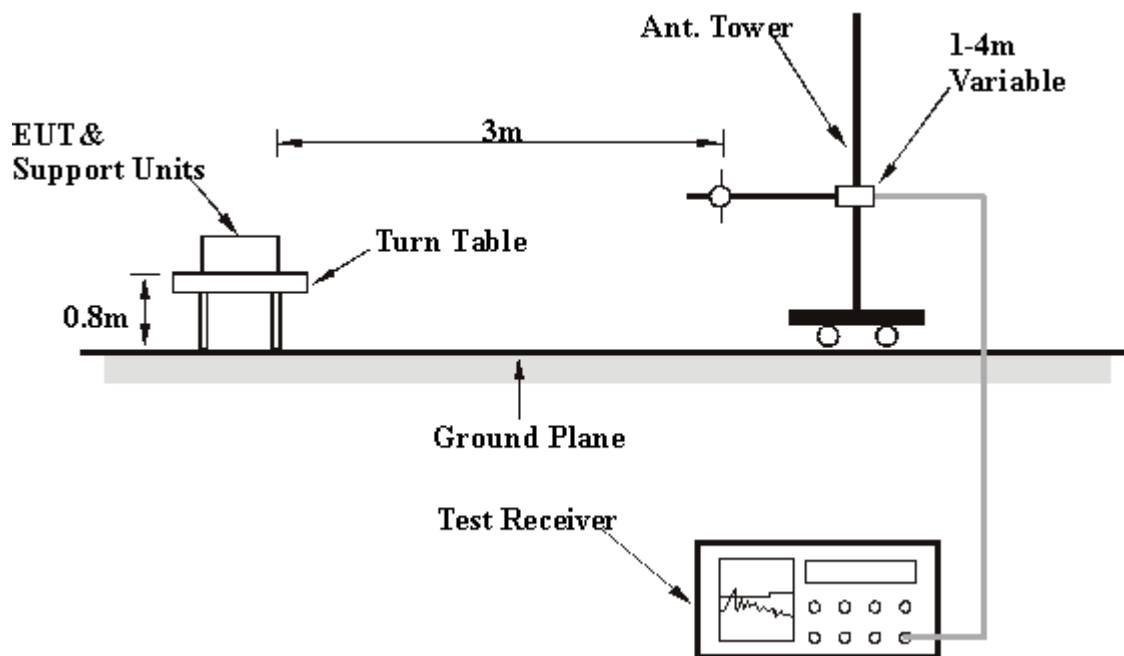
NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Peak detection (PK) and Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1 MHz for Peak detection at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 1kHz for Average detection (AV) at frequency above 1GHz.

4.2.4 DEVIATION FROM TEST STANDARD

No deviation

4.2.5 TEST SETUP



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

4.2.6 EUT OPERATING CONDITIONS

Same as 4.1.6

4.2.7 TEST RESULTS

RADIATED BELOW 1GHz WORST CASE DATA (DIPOLE AND PRINTED ANTENNA)

EUT	802.11g Wireless MIMO miniPCI Module	MEASUREMENT DETAIL	
MODEL	WMD-360A	FREQUENCY RANGE	Below 1000MHz
CHANNEL	Channel 11	DETECTOR FUNCTION	Quasi-Peak
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	27deg. C, 68%RH, 991hPa
TRANSFER RATE	1Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TEST MODE	1	TESTED BY	Match Tsui

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	99.98	40.70 QP	43.50	-2.80	2.00 H	337	29.96	10.74
2	134.97	36.62 QP	43.50	-6.88	2.00 H	10	22.77	13.86
3	168.02	41.36 QP	43.50	-2.14	2.00 H	352	27.48	13.88
4	199.43	40.54 QP	43.50	-2.96	1.00 H	17	29.37	11.18
5	232.16	34.41 QP	46.00	-11.59	1.00 H	358	21.99	12.41
6	331.30	31.56 QP	46.00	-14.44	1.00 H	49	16.52	15.04
7	440.16	32.26 QP	46.00	-13.74	1.00 H	286	14.60	17.66
8	465.43	29.90 QP	46.00	-16.10	2.00 H	52	11.78	18.12
9	603.45	39.84 QP	46.00	-6.16	1.50 H	136	18.90	20.94

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.

EUT	802.11g Wireless MIMO miniPCI Module	MEASUREMENT DETAIL	
MODEL	WMD-360A	FREQUENCY RANGE	Below 1000MHz
CHANNEL	Channel 11	DETECTOR FUNCTION	Quasi-Peak
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	27deg. C, 68%RH, 991hPa
TRANSFER RATE	1Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TEST MODE	1	TESTED BY	Match Tsui

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	63.05	27.23 QP	40.00	-12.77	1.00 V	349	14.12	13.11
2	99.98	32.29 QP	43.50	-11.21	2.00 V	337	21.55	10.74
3	168.02	34.73 QP	43.50	-8.77	1.50 V	313	20.86	13.88
4	199.12	36.48 QP	43.50	-7.02	1.50 V	286	25.28	11.20
5	267.15	29.05 QP	46.00	-16.95	2.00 V	301	15.52	13.53
6	403.23	29.81 QP	46.00	-16.19	2.00 V	37	13.09	16.72
7	440.16	38.00 QP	46.00	-8.00	1.00 V	7	20.34	17.66
8	465.43	33.05 QP	46.00	-12.95	1.00 V	43	14.93	18.12
9	605.39	43.56 QP	46.00	-2.44	1.00 V	319	22.59	20.97
10	636.49	35.91 QP	46.00	-10.09	1.00 V	250	14.51	21.40

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.

802.11b DSSS MODULATION (DIPOLE AND PRINTED ANTENNA)

EUT	802.11g Wireless MIMO miniPCI Module	MEASUREMENT DETAIL	
MODEL	WMD-360A	FREQUENCY RANGE	1 ~ 25GHz
CHANNEL	Channel 1	DETECTOR FUNCTION	Peak (PK) Average (AV)
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	28deg. C, 67%RH, 991hPa
TRANSFER RATE	1Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TEST MODE	1	TESTED BY	Match Tsui

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1830.00	55.18 PK	83.83	-28.65	1.54 H	181	25.85	29.33
1	1830.00	44.61 AV	76.20	-31.59	1.54 H	181	15.28	29.33
2	2016.00	53.44 PK	83.83	-30.39	1.38 H	187	23.10	30.34
2	2016.00	52.33 AV	76.20	-23.87	1.38 H	187	21.99	30.34
3	2390.00	55.25 PK	74.00	-18.75	1.62 H	191	23.21	32.04
3	2390.00	45.55 AV	54.00	-8.45	1.62 H	191	13.51	32.04
4	*2412.00	103.83 PK			1.62 H	191	71.70	32.13
4	*2412.00	96.20 AV			1.62 H	191	64.07	32.13
5	7236.00	55.57 PK	83.83	-28.26	1.64 H	112	10.82	44.75
5	7236.00	43.80 AV	76.20	-32.40	1.64 H	112	-0.95	44.75

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1053.00	47.02 PK	74.00	-26.98	1.00 V	186	19.56	27.46
1	1053.00	43.97 AV	54.00	-10.03	1.00 V	186	16.51	27.46
2	1830.00	67.32 PK	93.19	-25.87	1.02 V	307	37.99	29.33
2	1830.00	49.78 AV	85.61	-35.83	1.02 V	307	20.45	29.33
3	2016.00	52.94 PK	93.19	-40.25	1.32 V	307	22.60	30.34
3	2016.00	51.70 AV	85.61	-33.91	1.32 V	307	21.36	30.34
4	2390.00	56.98 PK	74.00	-17.02	1.18 V	318	24.94	32.04
4	2390.00	47.23 AV	54.00	-6.77	1.18 V	318	15.19	32.04
5	*2412.00	113.19 PK			1.18 V	318	81.06	32.13
5	*2412.00	105.61 AV			1.18 V	318	73.48	32.13
6	7236.00	57.30 PK	93.19	-35.89	1.56 V	171	12.55	44.75
6	7236.00	49.06 AV	85.61	-36.55	1.56 V	171	4.31	44.75

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * ” : Fundamental frequency.

EUT	802.11g Wireless MIMO miniPCI Module	MEASUREMENT DETAIL	
MODEL	WMD-360A	FREQUENCY RANGE	1 ~ 25GHz
CHANNEL	Channel 6	DETECTOR FUNCTION	Peak (PK) Average (AV)
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	28deg. C, 67%RH, 991hPa
TRANSFER RATE	1Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TEST MODE	1	TESTED BY	Match Tsui

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1854.00	73.62 PK	86.79	-13.17	1.47 H	191	44.16	29.46
1	1854.00	61.83 AV	78.98	-17.15	1.47 H	191	32.37	29.46
2	2016.00	59.41 PK	86.79	-27.38	1.72 H	33	29.07	30.34
2	2016.00	53.63 AV	78.98	-25.35	1.72 H	33	23.29	30.34
3	*2437.00	106.79 PK			2.00 H	211	74.54	32.25
3	*2437.00	98.98 AV			2.00 H	211	66.73	32.25
4	7311.00	52.19 PK	74.00	-21.81	1.15 H	114	7.34	44.85
4	7311.00	42.17 AV	54.00	-11.83	1.15 H	114	-2.68	44.85

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1854.00	75.69 PK	94.06	-18.37	1.00 V	271	46.23	29.46
1	1854.00	56.93 AV	87.01	-40.08	1.00 V	271	27.47	29.46
2	2016.00	56.49 PK	94.06	-37.57	1.29 V	286	26.15	30.34
2	2016.00	54.61 AV	87.01	-3.24	1.29 V	286	24.27	30.34
3	*2437.00	114.06 PK			1.12 V	136	81.81	32.25
3	*2437.00	107.01 AV			1.12 V	136	74.76	32.25
4	7311.00	60.27 PK	74.00	-13.73	1.51 V	158	15.42	44.85
4	7311.00	51.77 AV	54.00	-2.23	1.51 V	158	6.92	44.85

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * ” : Fundamental frequency.

EUT	802.11g Wireless MIMO miniPCI Module	MEASUREMENT DETAIL	
MODEL	WMD-360A	FREQUENCY RANGE	1 ~ 25GHz
CHANNEL	Channel 11	DETECTOR FUNCTION	Peak (PK) Average (AV)
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	28deg. C, 67%RH, 991hPa
TRANSFER RATE	1Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TEST MODE	1	TESTED BY	Match Tsui

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1876.00	76.94 PK	86.60	-9.66	1.29 H	291	47.36	29.58
1	1876.00	56.52 AV	79.07	-22.55	1.29 H	291	26.94	29.58
2	2016.00	52.67 PK	86.60	-33.93	1.00 H	51	22.33	30.34
2	2016.00	51.16 AV	79.07	-27.91	1.00 H	51	20.82	30.34
3	*2462.00	106.60 PK			1.00 H	153	74.24	32.36
3	*2462.00	99.07 AV			1.00 H	153	66.71	32.36
4	2483.50	56.79 PK	74.00	-17.21	1.00 H	153	24.33	32.46
4	2483.50	46.61 AV	54.00	-7.39	1.00 H	153	14.15	32.46
5	4924.00	55.78 PK	74.00	-18.22	1.55 H	18	17.32	38.46
5	4924.00	46.42 AV	54.00	-7.58	1.55 H	18	7.96	38.46
6	7386.00	55.00 PK	74.00	-19.00	1.28 H	99	9.94	45.06
6	7386.00	44.05 AV	54.00	-9.95	1.28 H	99	-1.01	45.06

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1877.00	82.33 PK	92.61	-10.28	1.36 V	287	52.74	29.58
1	1877.00	62.12 AV	85.09	-22.97	1.36 V	287	32.53	29.58
2	2016.00	57.20 PK	92.61	-35.41	1.40 V	262	26.86	30.34
2	2016.00	55.70 AV	85.09	-29.37	1.40 V	262	25.36	30.34
3	*2462.00	112.61 PK			1.08 V	123	80.25	32.36
3	*2462.00	105.09 AV			1.08 V	123	72.73	32.36
4	2483.50	58.86 PK	74.00	-15.14	1.08 V	123	26.40	32.46
4	2483.50	49.49 AV	54.00	-4.51	1.08 V	123	17.03	32.46
5	7386.00	58.18 PK	74.00	-15.82	1.28 V	171	13.12	45.06
5	7386.00	49.35 AV	54.00	-4.65	1.28 V	171	4.29	45.06

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * ” : Fundamental frequency.

802.11g OFDM MODULATION_NORMAL MODE (DIPOLE AND PRINTED ANTENNA)

EUT	802.11g Wireless MIMO miniPCI Module	MEASUREMENT DETAIL	
MODEL	WMD-360A	FREQUENCY RANGE	1 ~ 25GHz
CHANNEL	Channel 1	DETECTOR FUNCTION	Peak (PK) Average (AV)
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	28deg. C, 67%RH, 991hPa
TRANSFER RATE	6Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TEST MODE	1	TESTED BY	Match Tsui

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1832.00	67.21 PK	82.46	-15.25	1.01 H	61	37.88	29.34
1	1832.00	43.85 AV	73.44	-19.59	1.01 H	61	14.52	29.34
2	2016.00	47.07 PK	82.46	-35.39	1.29 H	303	16.73	30.34
2	2016.00	44.20 AV	73.44	-29.24	1.29 H	303	13.86	30.34
3	2390.00	56.76 PK	74.00	-17.24	1.42 H	3	24.72	32.04
3	2390.00	47.20 AV	54.00	-6.80	1.42 H	3	15.16	32.04
4	*2412.00	102.46 PK			1.42 H	3	70.33	32.13
4	*2412.00	93.44 AV			1.42 H	3	61.31	32.13
5	7236.00	52.47 PK	82.46	-29.99	1.06 H	270	7.72	44.75
5	7236.00	40.85 AV	73.44	-32.59	1.06 H	270	-3.90	44.75

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1053.00	47.07 PK	74.00	-26.93	1.02 V	312	19.61	27.46
1	1053.00	43.71 AV	54.00	-10.29	1.02 V	312	16.25	27.46
2	1829.00	69.60 PK	89.99	-20.39	1.00 V	257	40.28	29.32
2	1829.00	45.14 AV	79.79	-34.65	1.00 V	257	15.82	29.32
3	2016.00	51.07 PK	89.99	-38.92	1.01 V	100	20.73	30.34
3	2016.00	49.60 AV	79.79	-30.19	1.01 V	100	19.26	30.34
4	2390.00	71.18 PK	74.00	-2.82	1.13 V	128	39.14	32.04
4	2390.00	50.62 AV	54.00	-3.38	1.13 V	128	18.58	32.04
5	*2412.00	109.99 PK			1.13 V	128	77.86	32.13
5	*2412.00	99.79 AV			1.13 V	128	67.66	32.13
6	7236.00	52.16 PK	89.99	-37.83	1.01 V	360	7.41	44.75
6	7236.00	41.38 AV	79.79	-38.41	1.01 V	360	-3.37	44.75

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * ” : Fundamental frequency.

EUT	802.11g Wireless MIMO miniPCI Module	MEASUREMENT DETAIL	
MODEL	WMD-360A	FREQUENCY RANGE	1 ~ 25GHz
CHANNEL	Channel 6	DETECTOR FUNCTION	Peak (PK) Average (AV)
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	28deg. C, 67%RH, 991hPa
TRANSFER RATE	6Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TEST MODE	1	TESTED BY	Match Tsui

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1854.00	70.82 PK	81.57	-10.75	1.02 H	67	41.36	29.46
1	1854.00	46.20 AV	71.35	-25.15	1.02 H	67	16.74	29.46
2	2016.00	49.99 PK	81.57	-31.58	1.22 H	280	19.65	30.34
2	2016.00	48.65 AV	71.35	-22.70	1.22 H	280	18.31	30.34
3	*2437.00	101.57 PK			1.37 H	14	69.32	32.25
3	*2437.00	91.35 AV			1.37 H	14	59.10	32.25
4	7311.00	52.29 PK	74.00	-21.71	1.00 H	323	7.44	44.85
4	7311.00	40.15 AV	54.00	-13.85	1.00 H	323	-4.70	44.85

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1854.00	74.29 PK	89.07	-14.78	1.42 V	162	44.83	29.46
1	1854.00	46.58 AV	80.24	-33.66	1.42 V	162	17.12	29.46
2	2016.00	56.14 PK	89.07	-32.93	1.02 V	308	25.80	30.34
2	2016.00	54.94 AV	80.24	-25.30	1.02 V	308	24.60	30.34
3	*2437.00	109.07 PK			1.13 V	164	76.82	32.25
3	*2437.00	100.24 AV			1.13 V	164	67.99	32.25
4	7311.00	60.71 PK	74.00	-13.29	1.21 V	170	15.86	44.85
4	7311.00	45.26 AV	54.00	-8.74	1.21 V	170	0.41	44.85

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * ” : Fundamental frequency.

EUT	802.11g Wireless MIMO miniPCI Module	MEASUREMENT DETAIL	
MODEL	WMD-360A	FREQUENCY RANGE	1 ~ 25GHz
CHANNEL	Channel 11	DETECTOR FUNCTION	Peak (PK) Average (AV)
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	28deg. C, 67%RH, 991hPa
TRANSFER RATE	6Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TEST MODE	1	TESTED BY	Match Tsui

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1874.00	73.33 PK	82.00	-8.67	1.06 H	131	43.76	29.57
1	1874.00	47.23 AV	73.47	-26.24	1.06 H	131	17.66	29.57
2	2016.00	49.58 PK	82.00	-32.42	1.04 H	233	19.24	30.34
2	2016.00	47.64 AV	73.47	-25.83	1.04 H	233	17.30	30.34
3	*2462.00	102.00 PK			1.36 H	353	69.64	32.36
3	*2462.00	93.47 AV			1.36 H	353	61.11	32.36
4	2483.50	57.90 PK	74.00	-16.10	1.36 H	353	25.44	32.46
4	2483.50	46.90 AV	54.00	-7.10	1.36 H	353	14.44	32.46
5	7386.00	52.18 PK	74.00	-21.82	1.00 H	1	7.12	45.06
5	7386.00	39.92 AV	54.00	-14.08	1.00 H	1	-5.14	45.06

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1876.00	74.20 PK	90.20	-16.00	1.47 V	329	44.62	29.58
1	1876.00	50.50 AV	81.32	-30.82	1.47 V	329	20.92	29.58
2	2016.00	54.59 PK	90.20	-35.61	1.44 V	266	24.25	30.34
2	2016.00	53.32 AV	81.32	-28.00	1.44 V	266	22.98	30.34
3	*2462.00	110.20 PK			1.10 V	24	77.84	32.36
3	*2462.00	101.32 AV			1.10 V	24	68.96	32.36
4	2483.50	62.06 PK	74.00	-11.94	1.10 V	24	29.60	32.46
4	2483.50	50.57 AV	54.00	-3.43	1.10 V	24	18.11	32.46
5	7386.00	61.66 PK	74.00	-12.34	1.02 V	170	16.60	45.06
5	7386.00	47.08 AV	54.00	-6.92	1.02 V	170	2.02	45.06

REMARKS:

1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. “ * ” : Fundamental frequency.

802.11g OFDM MODULATION_TURBO MODE (DIPOLE AND PRINTED ANTENNA)

EUT	802.11g Wireless MIMO miniPCI Module	MEASUREMENT DETAIL	
MODEL	WMD-360A	FREQUENCY RANGE	Below 1000MHz
CHANNEL	Channel 11	DETECTOR FUNCTION	Quasi-Peak
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	27deg. C, 68%RH, 991hPa
TRANSFER RATE	12Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TEST MODE	1	TESTED BY	Match Tsui

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	99.98	40.10 QP	43.50	-3.40	1.50 H	163	29.36	10.74
2	133.10	38.13 QP	43.50	-5.37	1.50 H	255	24.40	13.73
3	166.10	40.28 QP	43.50	-3.22	2.00 H	230	26.22	14.06
4	199.98	41.11 QP	43.50	-2.39	1.25 H	55	29.98	11.13
5	232.16	34.41 QP	46.00	-11.59	1.00 H	358	21.99	12.41
6	267.15	30.38 QP	46.00	-15.62	1.00 H	31	16.85	13.53
7	330.20	32.20 QP	46.00	-13.80	1.00 H	150	17.19	15.01
8	444.18	35.28 QP	46.00	-10.72	1.25 H	46	17.52	17.76
9	464.28	30.80 QP	46.00	-15.20	1.50 H	236	12.70	18.10
10	605.44	41.80 QP	46.00	-4.20	1.50 H	233	20.83	20.97
11	731.74	26.85 QP	46.00	-19.15	1.00 H	22	3.86	22.99
12	920.30	26.99 QP	46.00	-19.01	1.50 H	337	1.68	25.31

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.

EUT	802.11g Wireless MIMO miniPCI Module	MEASUREMENT DETAIL	
MODEL	WMD-360A	FREQUENCY RANGE	Below 1000MHz
CHANNEL	Channel 11	DETECTOR FUNCTION	Quasi-Peak
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	27deg. C, 68%RH, 991hPa
TRANSFER RATE	12Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TEST MODE	1	TESTED BY	Match Tsui

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	64.20	37.50 QP	40.00	-2.50	1.50 V	29	24.52	12.98
2	99.98	32.29 QP	43.50	-11.21	2.00 V	337	21.55	10.74
3	167.89	35.88 QP	43.50	-7.62	2.00 V	328	21.99	13.89
4	200.17	37.28 QP	43.50	-6.22	1.75 V	300	26.14	11.14
5	268.70	30.50 QP	46.00	-15.50	2.00 V	147	16.90	13.60
6	403.23	29.81 QP	46.00	-16.19	2.00 V	37	13.09	16.72
7	441.10	39.25 QP	46.00	-6.75	1.25 V	147	21.57	17.68
8	464.20	32.80 QP	46.00	-13.20	1.00 V	143	14.70	18.10
9	603.20	43.11 QP	46.00	-2.89	1.50 V	146	22.17	20.94
10	637.44	36.58 QP	46.00	-9.42	1.25 V	300	15.17	21.41
11	797.84	26.28 QP	46.00	-19.72	1.50 V	142	2.59	23.69

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.

EUT	802.11g Wireless MIMO miniPCI Module	MEASUREMENT DETAIL	
MODEL	WMD-360A	FREQUENCY RANGE	1 ~ 25GHz
CHANNEL	Channel 6	DETECTOR FUNCTION	Peak (PK) Average (AV)
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	28deg. C, 67%RH, 991hPa
TRANSFER RATE	12Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TEST MODE	1	TESTED BY	Match Tsui

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1853.00	68.75 PK	79.84	-39.09	1.48 H	174	39.30	29.45
1	1853.00	44.14 AV	71.27	-27.13	1.48 H	174	14.69	29.45
2	2016.00	51.88 PK	79.84	-27.96	1.34 H	198	21.54	30.34
2	2016.00	50.46 AV	71.27	-20.81	1.34 H	198	20.12	30.34
3	2390.00	56.43 PK	74.00	-17.57	1.05 H	148	24.39	32.04
3	2390.00	46.08 AV	54.00	-7.92	1.05 H	148	14.04	32.04
4	*2437.00	99.84 PK			1.05 H	148	67.59	32.25
4	*2437.00	91.27 AV			1.05 H	148	59.02	32.25
5	2483.50	55.43 PK	74.00	-18.57	1.05 H	148	22.97	32.46
5	2483.50	46.39 AV	54.00	-7.61	1.05 H	148	13.93	32.46
6	4874.00	46.63 PK	74.00	-27.37	1.12 H	187	8.31	38.32
6	4874.00	34.54 AV	54.00	-19.46	1.12 H	187	-3.78	38.32

REMARKS:

1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. “ * ” : Fundamental frequency.

EUT	802.11g Wireless MIMO miniPCI Module	MEASUREMENT DETAIL	
MODEL	WMD-360A	FREQUENCY RANGE	1 ~ 25GHz
CHANNEL	Channel 6	DETECTOR FUNCTION	Peak (PK) Average (AV)
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	28deg. C, 67%RH, 991hPa
TRANSFER RATE	12Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TEST MODE	1	TESTED BY	Match Tsui

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1847.00	67.88 PK	87.56	-19.68	1.03 V	309	38.46	29.42
1	1847.00	40.80 AV	78.38	-37.58	1.03 V	309	11.38	29.42
2	2016.00	54.51 PK	87.56	-33.05	1.01 V	123	24.17	30.34
2	2016.00	53.70 AV	78.38	-24.68	1.01 V	123	23.36	30.34
3	2387.00	64.37 PK	74.00	-9.63	1.12 V	73	32.35	32.02
3	2387.00	49.40 AV	54.00	-4.60	1.12 V	73	17.38	32.02
4	*2437.00	107.56 PK			1.12 V	73	75.31	32.25
4	*2437.00	98.38 AV			1.12 V	73	66.13	32.25
5	2483.50	63.75 PK	74.00	-10.25	1.12 V	73	31.29	32.46
5	2483.50	49.84 AV	54.00	-4.16	1.12 V	73	17.38	32.46
6	7311.00	57.04 PK	74.00	-16.96	1.21 V	168	12.19	44.85
6	7311.00	44.41 AV	54.00	-9.59	1.21 V	168	-0.44	44.85

REMARKS:

1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. “ * ” : Fundamental frequency.

RADIATED BELOW 1GHz WORST CASE DATA (DIPOLE ANTENNA)

EUT	802.11g Wireless MIMO miniPCI Module	MEASUREMENT DETAIL	
MODEL	WMD-360A	FREQUENCY RANGE	Below 1000MHz
CHANNEL	Channel 11	DETECTOR FUNCTION	Quasi-Peak
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	27deg. C, 68%RH, 991hPa
TRANSFER RATE	1Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TEST MODE	2	TESTED BY	Match Tsui

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	64.99	26.27 QP	40.00	-13.73	2.00 H	358	13.37	12.90
2	99.98	38.70 QP	43.50	-4.80	2.00 H	205	27.96	10.74
3	133.03	38.34 QP	43.50	-5.16	2.00 H	160	24.62	13.72
4	166.80	39.02 QP	43.50	-4.48	2.00 H	10	25.02	14.00
5	199.40	40.67 QP	43.50	-2.83	1.50 H	154	29.50	11.18
6	232.16	38.41 QP	46.00	-7.59	1.00 H	355	26.00	12.41
7	265.21	34.27 QP	46.00	-11.73	1.00 H	124	20.83	13.45
8	440.16	32.39 QP	46.00	-13.61	1.50 H	313	14.73	17.66
9	552.91	36.26 QP	46.00	-9.74	1.50 H	13	16.58	19.68
10	595.67	37.99 QP	46.00	-8.01	1.50 H	31	17.20	20.78
11	735.63	33.53 QP	46.00	-12.47	1.00 H	37	10.45	23.08
12	828.94	32.34 QP	46.00	-13.66	1.00 H	334	8.40	23.94

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.

EUT	802.11g Wireless MIMO miniPCI Module	MEASUREMENT DETAIL	
MODEL	WMD-360A	FREQUENCY RANGE	Below 1000MHz
CHANNEL	Channel 11	DETECTOR FUNCTION	Quasi-Peak
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	27deg. C, 68%RH, 991hPa
TRANSFER RATE	1Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TEST MODE	2	TESTED BY	Match Tsui

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	61.10	27.76 QP	40.00	-12.24	1.00 V	220	14.43	13.33
2	98.04	29.85 QP	43.50	-13.65	2.00 V	103	19.26	10.59
3	166.07	34.14 QP	43.50	-9.36	1.50 V	310	20.08	14.07
4	199.12	36.96 QP	43.50	-6.54	1.50 V	262	25.76	11.20
5	465.43	32.77 QP	46.00	-13.23	1.00 V	58	14.65	18.12
6	599.56	37.18 QP	46.00	-8.82	1.00 V	283	16.30	20.88
7	638.44	33.34 QP	46.00	-12.66	2.00 V	55	11.91	21.43

REMARKS:

1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.

802.11b DSSS MODULATION (DIPOLE ANTENNA)

EUT	802.11g Wireless MIMO miniPCI Module	MEASUREMENT DETAIL	
MODEL	WMD-360A	FREQUENCY RANGE	1 ~ 25GHz
CHANNEL	Channel 1	DETECTOR FUNCTION	Peak (PK) Average (AV)
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	28deg. C, 67%RH, 991hPa
TRANSFER RATE	1Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TEST MODE	2	TESTED BY	Match Tsui

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1832.00	48.31 PK	92.02	-43.71	1.34 H	5	18.98	29.34
1	1832.00	39.50 AV	84.54	-45.04	1.34 H	5	10.17	29.34
2	2016.00	51.24 PK	92.02	-40.78	1.23 H	320	20.90	30.34
2	2016.00	50.06 AV	84.54	-34.48	1.23 H	320	19.72	30.34
3	2386.00	59.48 PK	74.00	-14.52	1.21 H	325	27.46	32.02
3	2386.00	50.08 AV	54.00	-3.92	1.21 H	325	18.06	32.02
4	*2412.00	112.02 PK			1.21 H	325	79.89	32.13
4	*2412.00	104.54 AV			1.21 H	325	72.41	32.13

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1828.00	54.39 PK	87.18	-32.79	1.16 V	320	25.07	29.31
1	1828.00	43.72 AV	79.61	-35.89	1.16 V	320	14.40	29.31
2	2016.00	49.25 PK	87.18	-37.93	1.00 V	285	18.91	30.34
2	2016.00	47.22 AV	79.61	-32.39	1.00 V	285	16.88	30.34
3	2386.00	55.25 PK	74.00	-18.75	1.09 V	256	23.23	32.02
3	2386.00	46.64 AV	54.00	-7.36	1.09 V	256	14.62	32.02
4	*2412.00	107.18 PK			1.09 V	256	75.05	32.13
4	*2412.00	99.61 AV			1.09 V	256	67.48	32.13

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * ” : Fundamental frequency.

EUT	802.11g Wireless MIMO miniPCI Module	MEASUREMENT DETAIL	
MODEL	WMD-360A	FREQUENCY RANGE	1 ~ 25GHz
CHANNEL	Channel 6	DETECTOR FUNCTION	Peak (PK) Average (AV)
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	28deg. C, 67%RH, 991hPa
TRANSFER RATE	1Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TEST MODE	2	TESTED BY	Match Tsui

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1848.00	65.42 PK	93.34	-27.92	1.38 H	9	36.00	29.42
1	1848.00	48.89 AV	85.50	-36.61	1.38 H	9	19.47	29.42
2	2016.00	53.91 PK	93.34	-39.43	1.29 H	154	23.57	30.34
2	2016.00	52.18 AV	85.50	-33.32	1.29 H	154	21.84	30.34
3	*2437.00	113.34 PK			1.00 H	334	81.09	32.25
3	*2437.00	105.50 AV			1.00 H	334	73.25	32.25
4	7311.00	55.00 PK	74.00	-19.00	1.34 H	262	10.15	44.85
4	7311.00	44.68 AV	54.00	-9.32	1.34 H	262	-0.17	44.85

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1848.00	65.84 PK	87.35	-21.51	1.13 V	306	36.42	29.42
1	1848.00	49.16 AV	79.71	-30.56	1.13 V	306	19.74	29.42
2	2016.00	54.35 PK	87.35	-33.00	1.00 V	320	24.01	30.34
2	2016.00	53.23 AV	79.71	-26.48	1.00 V	320	22.89	30.34
3	*2437.00	107.35 PK			1.10 V	258	75.10	32.25
3	*2437.00	99.71 AV			1.10 V	258	67.46	32.25

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * ” : Fundamental frequency.

EUT	802.11g Wireless MIMO miniPCI Module	MEASUREMENT DETAIL	
MODEL	WMD-360A	FREQUENCY RANGE	1 ~ 25GHz
CHANNEL	Channel 11	DETECTOR FUNCTION	Peak (PK) Average (AV)
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	28deg. C, 67%RH, 991hPa
TRANSFER RATE	1Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TEST MODE	2	TESTED BY	Match Tsui

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1868.00	73.46 PK	92.11	-18.65	1.43 H	176	43.92	29.53
1	1868.00	51.25 AV	84.52	-33.27	1.43 H	176	21.71	29.53
2	2016.00	52.53 PK	92.11	-39.58	1.00 H	171	22.19	30.34
2	2016.00	50.49 AV	84.52	-34.03	1.00 H	171	20.15	30.34
3	*2462.00	112.11 PK			1.47 H	138	79.75	32.36
3	*2462.00	104.52 AV			1.47 H	138	72.16	32.36
4	2483.50	70.19 PK	74.00	-3.81	1.47 H	138	37.73	32.46
4	2483.50	52.14 AV	54.00	-1.86	1.47 H	138	19.68	32.46

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1870.00	73.28 PK	85.48	-12.20	1.17 V	211	43.74	29.54
1	1870.00	53.02 AV	78.28	-25.26	1.17 V	211	23.48	29.54
2	2016.00	55.62 PK	85.48	-29.86	1.06 V	203	25.28	30.34
2	2016.00	53.84 AV	78.28	-24.44	1.06 V	203	23.50	30.34
3	2462.00	105.48 PK			1.46 V	260	73.12	32.36
3	2462.00	98.28 AV			1.46 V	260	65.92	32.36
4	*2483.50	54.63 PK	74.00	-19.37	1.46 V	260	22.17	32.46
4	*2483.50	45.79 AV	54.00	-8.21	1.46 V	260	13.33	32.46

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * ” : Fundamental frequency.

802.11g OFDM MODULATION_NORMAL MODE (DIPOLE ANTENNA)

EUT	802.11g Wireless MIMO miniPCI Module	MEASUREMENT DETAIL	
MODEL	WMD-360A	FREQUENCY RANGE	1 ~ 25GHz
CHANNEL	Channel 1	DETECTOR FUNCTION	Peak (PK) Average (AV)
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	28deg. C, 67%RH, 991hPa
TRANSFER RATE	6Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TEST MODE	2	TESTED BY	Match Tsui

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1840.00	54.02 PK	74.00	-19.98	1.04 H	348	24.64	29.38
1	1840.00	38.46 AV	54.00	-15.54	1.04 H	348	9.08	29.38
2	2016.00	46.76 PK	74.00	-27.24	1.24 H	1	16.42	30.34
2	2016.00	43.58 AV	54.00	-10.42	1.24 H	1	13.24	30.34
3	2390.00	66.10 PK	74.00	-7.90	1.00 H	352	34.06	32.04
3	2390.00	50.58 AV	54.00	-3.42	1.00 H	352	18.54	32.04
4	*2412.00	111.16 PK			1.00 H	352	79.03	32.13
4	*2412.00	101.04 AV			1.00 H	352	68.91	32.13

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1828.00	56.63 PK	74.00	-17.37	1.15 V	124	27.31	29.31
1	1828.00	40.84 AV	54.00	-13.16	1.15 V	124	11.52	29.31
2	2016.00	47.50 PK	74.00	-26.50	1.30 V	249	17.16	30.34
2	2016.00	44.93 AV	54.00	-9.07	1.30 V	249	14.59	30.34
3	2390.00	59.27 PK	74.00	-14.73	1.34 V	229	27.23	32.04
3	2390.00	47.51 AV	54.00	-6.49	1.34 V	229	15.47	32.04
4	*2412.00	105.49 PK			1.34 V	229	73.36	32.13
4	*2412.00	96.10 AV			1.34 V	229	63.97	32.13

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * ” : Fundamental frequency.

EUT	802.11g Wireless MIMO miniPCI Module	MEASUREMENT DETAIL	
MODEL	WMD-360A	FREQUENCY RANGE	1 ~ 25GHz
CHANNEL	Channel 6	DETECTOR FUNCTION	Peak (PK) Average (AV)
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	28deg. C, 67%RH, 991hPa
TRANSFER RATE	6Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TEST MODE	2	TESTED BY	Match Tsui

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1852.00	66.43 PK	91.01	-24.58	1.35 H	319	36.98	29.45
1	1852.00	42.55 AV	80.10	-37.55	1.35 H	319	13.10	29.45
2	2016.00	49.49 PK	91.01	-41.52	1.00 H	15	19.15	30.34
2	2016.00	47.93 AV	80.10	-32.17	1.00 H	15	17.59	30.34
3	*2437.00	111.01 PK			1.43 H	309	78.76	32.25
3	*2437.00	100.10 AV			1.43 H	309	67.85	32.25

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1850.00	71.34 PK	84.75	-13.41	1.11 V	255	41.91	29.44
1	1850.00	44.44 AV	75.69	-31.25	1.11 V	255	15.00	29.44
2	2016.00	52.59 PK	84.75	-32.16	1.00 V	300	22.25	30.34
2	2016.00	50.89 AV	75.69	-24.80	1.00 V	300	20.55	30.34
3	*2437.00	104.75 PK			1.08 V	227	72.50	32.25
3	*2437.00	95.69 AV			1.08 V	227	63.44	32.25

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * ” : Fundamental frequency.

EUT	802.11g Wireless MIMO miniPCI Module	MEASUREMENT DETAIL	
MODEL	WMD-360A	FREQUENCY RANGE	1 ~ 25GHz
CHANNEL	Channel 11	DETECTOR FUNCTION	Peak (PK) Average (AV)
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	28deg. C, 67%RH, 991hPa
TRANSFER RATE	6Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TEST MODE	2	TESTED BY	Match Tsui

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1872.00	68.58 PK	90.90	-22.32	1.05 H	343	39.03	29.56
1	1872.00	46.02 AV	80.13	-34.11	1.05 H	343	16.47	29.56
2	2016.00	52.84 PK	90.90	-38.06	1.23 H	200	22.50	30.34
2	2016.00	51.22 AV	80.13	-28.91	1.23 H	200	20.88	30.34
3	*2462.00	110.90 PK			1.17 H	323	78.54	32.36
3	*2462.00	100.13 AV			1.17 H	323	67.77	32.36
4	2483.50	67.72 PK	74.00	-6.28	1.17 H	323	35.26	32.46
4	2483.50	52.02 AV	54.00	-1.98	1.17 H	323	19.56	32.46

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1870.00	64.57 PK	83.77	-19.20	1.12 V	228	35.03	29.54
1	1870.00	44.67 AV	74.09	-29.42	1.12 V	228	15.13	29.54
2	2016.00	53.34 PK	83.77	-30.43	1.01 V	146	23.00	30.34
2	2016.00	51.86 AV	74.09	-22.23	1.01 V	146	21.52	30.34
3	*2462.00	103.77 PK			1.16 V	201	71.41	32.36
3	*2462.00	94.09 AV			1.16 V	201	61.73	32.36
4	2483.50	56.96 PK	74.00	-17.04	1.16 V	201	24.50	32.46
4	2483.50	47.41 AV	54.00	-6.59	1.16 V	201	14.95	32.46

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * ” : Fundamental frequency.

802.11g OFDM MODULATION_TURBO MODE (DIPOLE ANTENNA)

EUT	802.11g Wireless MIMO miniPCI Module	MEASUREMENT DETAIL	
MODEL	WMD-360A	FREQUENCY RANGE	Below 1000MHz
CHANNEL	Channel 11	DETECTOR FUNCTION	Quasi-Peak
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	27deg. C, 68%RH, 991hPa
TRANSFER RATE	12Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TEST MODE	2	TESTED BY	Match Tsui

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	100.07	40.62 QP	43.50	-2.88	2.00 H	322	29.87	10.75
2	133.80	36.80 QP	43.50	-6.70	1.50 H	132	23.03	13.77
3	166.58	41.10 QP	43.50	-2.40	2.00 H	247	27.08	14.02
4	200.25	40.28 QP	43.50	-3.22	1.25 H	236	29.14	11.14
5	232.16	34.41 QP	46.00	-11.59	1.00 H	358	21.99	12.41
6	330.20	32.80 QP	46.00	-13.20	1.00 H	146	17.79	15.01
7	440.16	32.26 QP	46.00	-13.74	1.00 H	286	14.60	17.66
8	464.28	30.88 QP	46.00	-15.12	1.50 H	156	12.78	18.10
9	604.88	40.10 QP	46.00	-5.90	1.50 H	211	19.14	20.96
10	636.49	32.38 QP	46.00	-13.62	1.50 H	127	10.98	21.40
11	920.30	26.99 QP	46.00	-19.01	1.50 H	337	1.68	25.31

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.

EUT	802.11g Wireless MIMO miniPCI Module	MEASUREMENT DETAIL	
MODEL	WMD-360A	FREQUENCY RANGE	Below 1000MHz
CHANNEL	Channel 11	DETECTOR FUNCTION	Quasi-Peak
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	27deg. C, 68%RH, 991hPa
TRANSFER RATE	12Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TEST MODE	2	TESTED BY	Match Tsui

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	60.47	28.99 QP	40.00	-11.01	1.25 V	147	15.59	13.40
2	99.88	30.88 QP	43.50	-12.62	2.00 V	127	20.14	10.74
3	166.14	33.88 QP	43.50	-9.62	1.00 V	320	19.82	14.06
4	199.88	37.55 QP	43.50	-5.95	1.50 V	277	26.41	11.14
5	265.21	29.34 QP	46.00	-16.66	2.00 V	10	15.90	13.45
6	333.25	27.30 QP	46.00	-18.70	1.50 V	295	12.21	15.08
7	399.34	29.26 QP	46.00	-16.74	2.00 V	82	12.64	16.62
8	464.20	31.88 QP	46.00	-14.12	1.50 V	158	13.78	18.10
9	579.25	35.80 QP	46.00	-10.20	1.50 V	100	15.44	20.36
10	600.07	38.20 QP	46.00	-7.80	2.00 V	143	17.31	20.89
11	638.44	33.34 QP	46.00	-12.66	2.00 V	55	11.91	21.43
12	832.83	28.38 QP	46.00	-17.62	2.00 V	40	4.41	23.98

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.

EUT	802.11g Wireless MIMO miniPCI Module	MEASUREMENT DETAIL	
MODEL	WMD-360A	FREQUENCY RANGE	1 ~ 25GHz
CHANNEL	Channel 6	DETECTOR FUNCTION	Peak (PK) Average (AV)
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	28deg. C, 67%RH, 991hPa
TRANSFER RATE	12Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TEST MODE	2	TESTED BY	Match Tsui

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1850.00	63.62 PK	74.00	-10.38	1.38 H	316	34.18	29.44
1	1850.00	39.35 AV	54.00	-14.65	1.38 H	316	9.91	29.44
2	2390.00	63.92 PK	74.00	-10.08	1.00 H	360	31.88	32.04
2	2390.00	50.71 AV	54.00	-3.29	1.00 H	360	18.67	32.04
3	*2437.00	108.36 PK			1.00 H	360	76.23	32.13
3	*2437.00	98.57 AV			1.00 H	360	66.44	32.13
4	2483.50	60.96 PK	74.00	-13.04	1.00 H	360	28.50	32.46
4	2483.50	48.36 AV	54.00	-5.64	1.00 H	360	15.90	32.46

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1850.00	65.81 PK	74.00	-8.19	1.15 V	130	36.38	29.44
1	1850.00	41.85 AV	54.00	-12.15	1.15 V	130	12.41	29.44
2	2016.00	51.50 PK	84.04	-32.54	1.33 V	304	21.16	30.34
2	2016.00	50.47 AV	74.75	-24.28	1.33 V	304	20.13	30.34
3	*2437.00	104.04 PK			1.07 V	227	71.79	32.25
3	*2437.00	94.75 AV			1.07 V	227	62.50	32.25
4	2483.50	54.54 PK	74.00	-19.46	1.07 V	227	22.08	32.46
4	2483.50	46.44 AV	54.00	-7.56	1.07 V	227	13.98	32.46

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * ” : Fundamental frequency.

4.3 6dB BANDWIDTH MEASUREMENT

4.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

4.3.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
SPECTRUM ANALYZER	FSEK30	100049	Aug. 12, 2005

NOTE: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

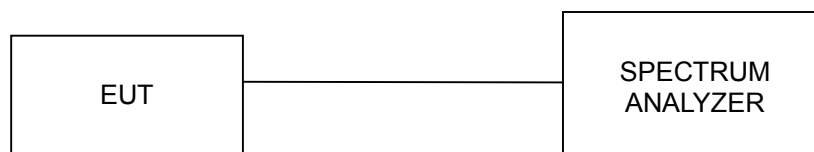
4.3.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 100 kHz RBW and 100kHz VBW. The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6dB.

4.3.4 DEVIATION FROM TEST STANDARD

No deviation

4.3.5 TEST SETUP



For the actual test configuration, please refer to the related Item – Photographs of the Test Configuration.

4.3.6 EUT OPERATING CONDITIONS

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

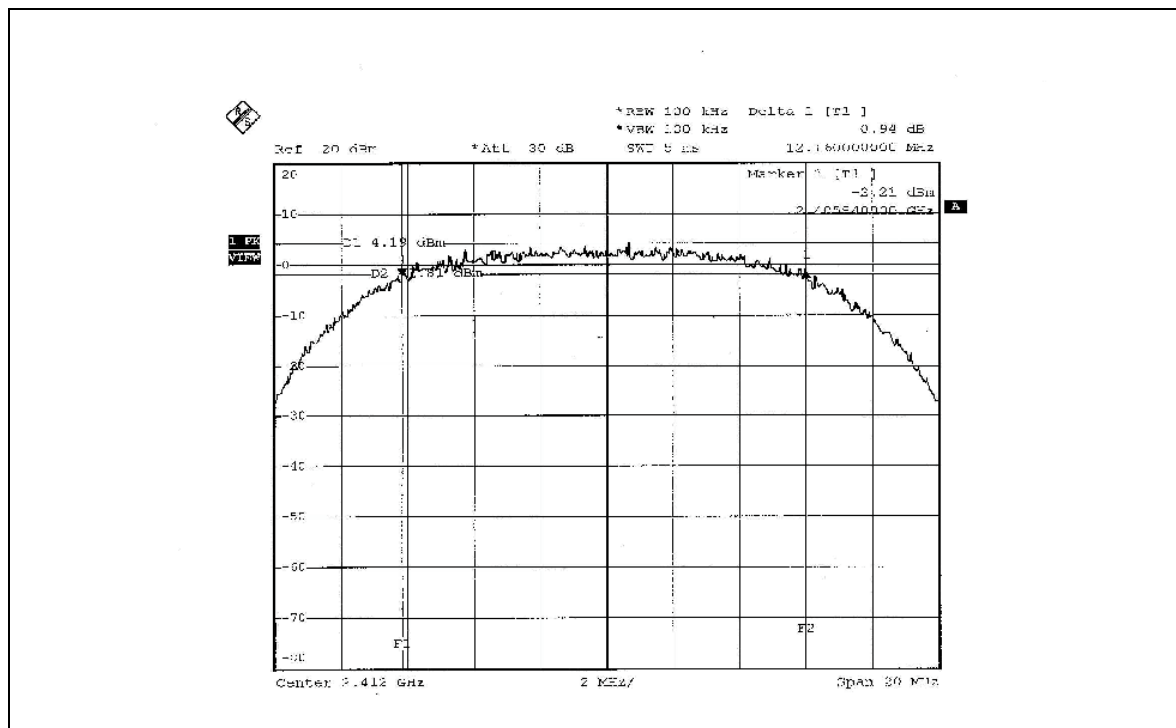
4.3.7 TEST RESULTS

802.11b DSSS MODULATION

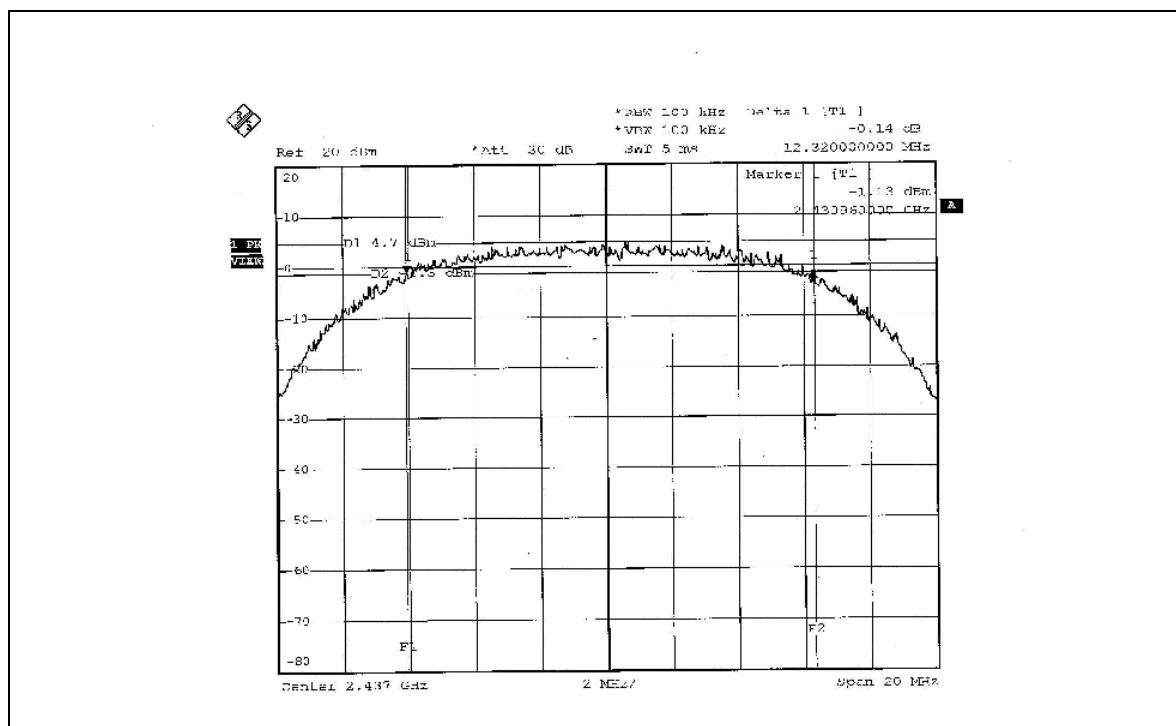
EUT	802.11g Wireless MIMO miniPCI Module	MODEL	WMD-360A
MODULATION TYPE	BPSK	TRANSFER RATE	1Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	28deg. C, 67%RH, 991hPa
TESTED BY	Match Tsui		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
1	2412	12.16	0.5	PASS
6	2437	12.32	0.5	PASS
11	2462	12.16	0.5	PASS

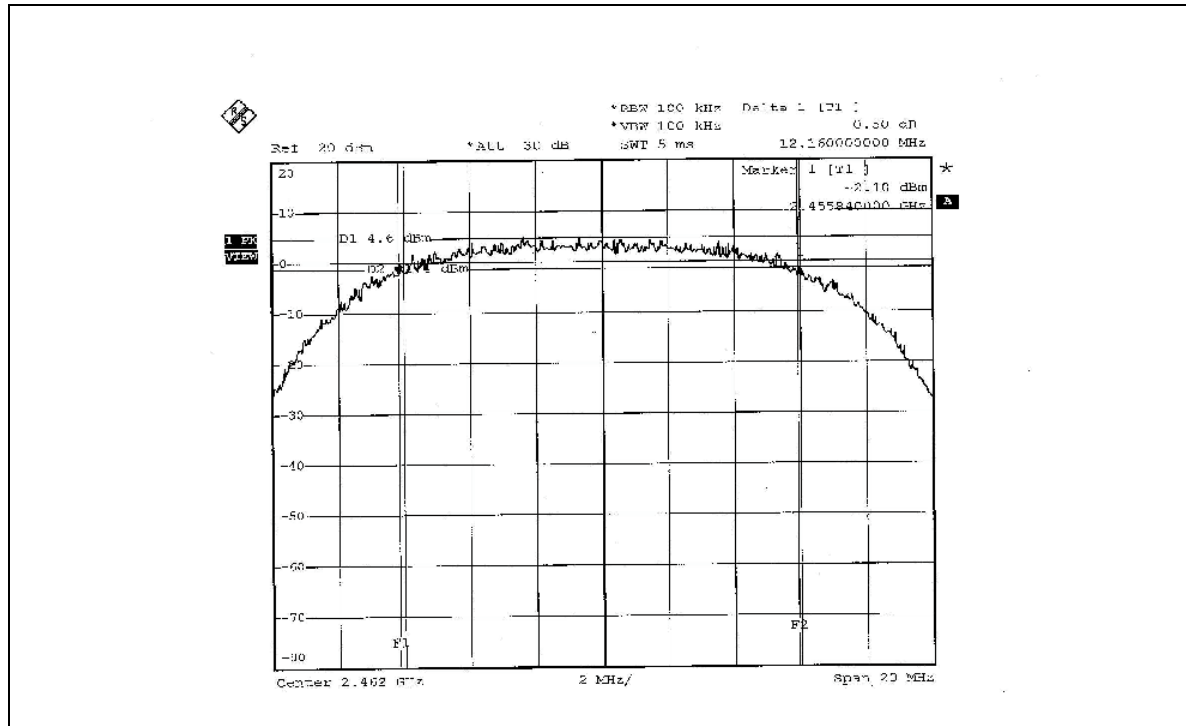
CH1



CH6



CH11



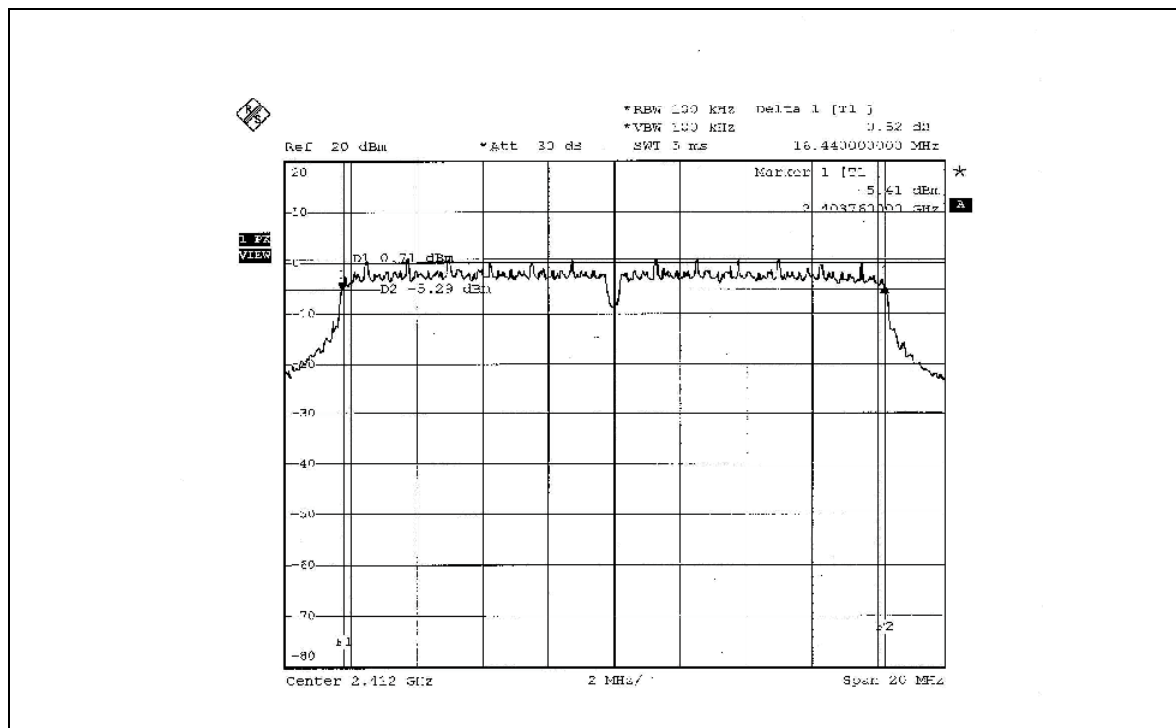


802.11g OFDM MODULATION_NORMAL MODE

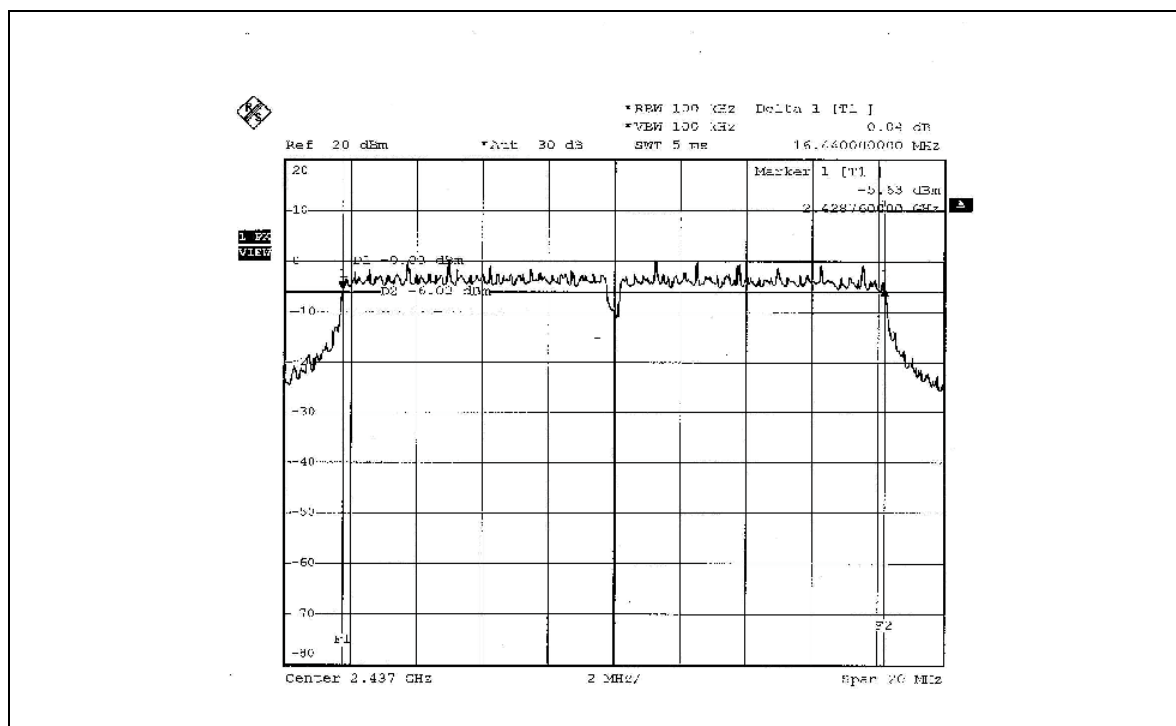
EUT	802.11g Wireless MIMO miniPCI Module	MODEL	WMD-360A
MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	28deg. C, 67%RH, 991hPa
TESTED BY	Match Tsui		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
1	2412	16.44	0.5	PASS
6	2437	16.44	0.5	PASS
11	2462	16.44	0.5	PASS

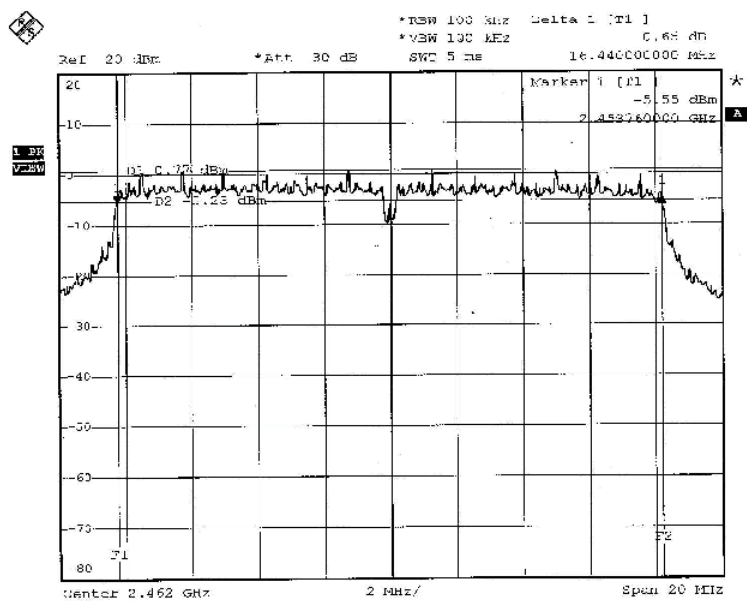
CH1



CH6



CH11

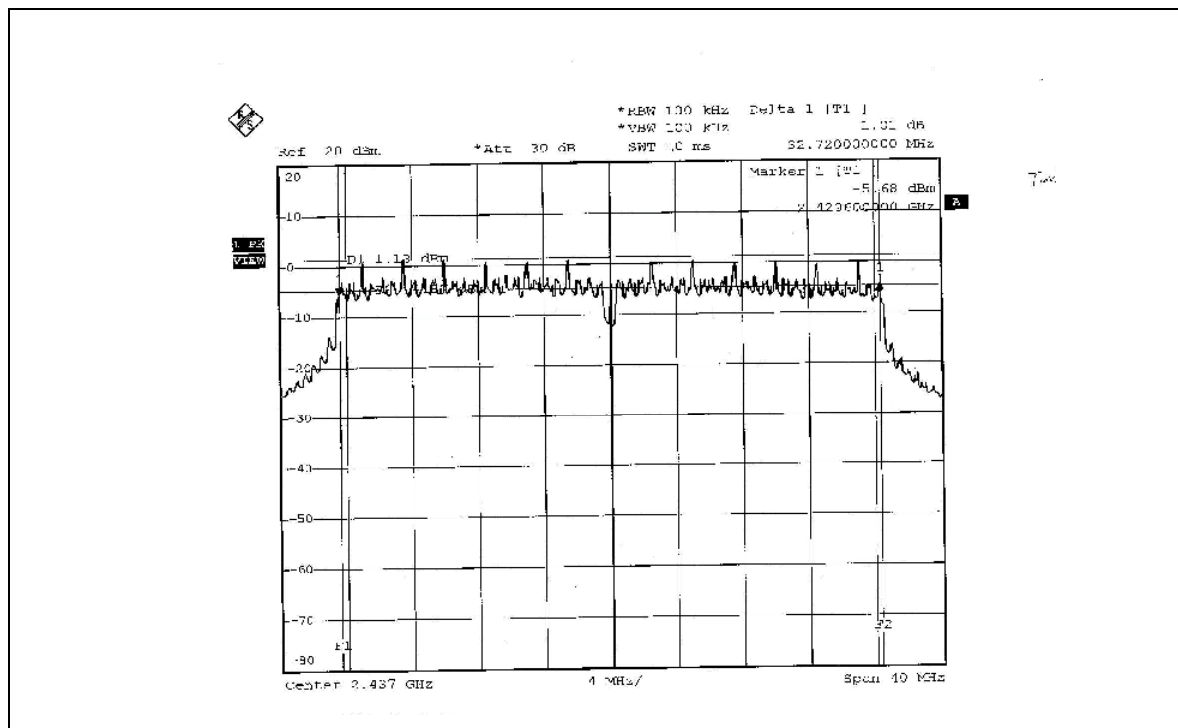


**802.11g OFDM MODULATION_TURBO MODE**

EUT	802.11g Wireless MIMO miniPCI Module	MODEL	WMD-360A
MODULATION TYPE	BPSK	TRANSFER RATE	12Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	28deg. C, 67%RH, 991hPa
TESTED BY	Match Tsui		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
6	2437	32.72	0.5	PASS

CH6



4.4 MAXIMUM PEAK OUTPUT POWER

4.4.1 LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT

The Maximum Peak Output Power Measurement is 30dBm.

4.4.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSEK30	100049	Aug. 12, 2005
AGILENT SIGNAL GENERATOR	E8257C	MY43320668	Dec. 06, 2005
TEKTRONIX OSCILLOSCOPE	TDS 220	C019167	Feb. 01, 2006
NARDA DETECTOR	4503A	FSCM99899	NA

NOTE: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

4.4.3 TEST PROCEDURES

1. A detector was used on the output port of the EUT. An oscilloscope was used to peak the response of the detector.
2. Replaced the EUT by the signal generator. The center frequency of the S.G was adjusted to the center frequency of the measured channel.
3. Adjusted the power to have the same peak reading on oscilloscope. Record the power level.

4.4.4 DEVIATION FROM TEST STANDARD

No deviation

4.4.5 TEST SETUP



4.4.6 EUT OPERATING CONDITIONS

Same as Item 4.3.6

4.4.7 TEST RESULTS

802.11b DSSS MODULATION

EUT	802.11g Wireless MIMO miniPCI Module	MODEL	WMD-360A
MODULATION TYPE	BPSK	TRANSFER RATE	1Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	26deg. C, 67%RH, 991hPa
TESTED BY	Match Tsui		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	40.179	16.04	30	PASS
6	2437	40.179	16.04	30	PASS
11	2462	40.458	16.07	30	PASS

802.11g OFDM MODULATION_NORMAL MODE

EUT	802.11g Wireless MIMO miniPCI Module	MODEL	WMD-360A
MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	26deg. C, 67%RH, 991hPa
TESTED BY	Match Tsui		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	40.644	16.09	30	PASS
6	2437	40.458	16.07	30	PASS
11	2462	40.272	16.05	30	PASS

802.11g OFDM MODULATION_TURBO MODE

EUT	802.11g Wireless MIMO miniPCI Module	MODEL	WMD-360A
MODULATION TYPE	BPSK	TRANSFER RATE	12Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	26deg. C, 67%RH, 991hPa
TESTED BY	Match Tsui		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
6	2437	40.551	16.08	30	PASS

4.5 POWER SPECTRAL DENSITY MEASUREMENT

4.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm.

4.5.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
SPECTRUM ANALYZER	FSEK30	100049	Aug. 12, 2005

NOTE: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

4.5.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer through an attenuator, the bandwidth of the fundamental frequency was measured with the spectrum analyzer using 3kHz RBW and 30kHz VBW, set sweep time=span/3kHz. The power spectral density was measured and recorded.

The sweep time is allowed to be longer than span/3kHz for a full response of the mixer in the spectrum analyzer.

4.5.4 DEVIATION FROM TEST STANDARD

No deviation

4.5.5 TEST SETUP



4.5.6 EUT OPERATING CONDITIONS

Same as 4.3.6

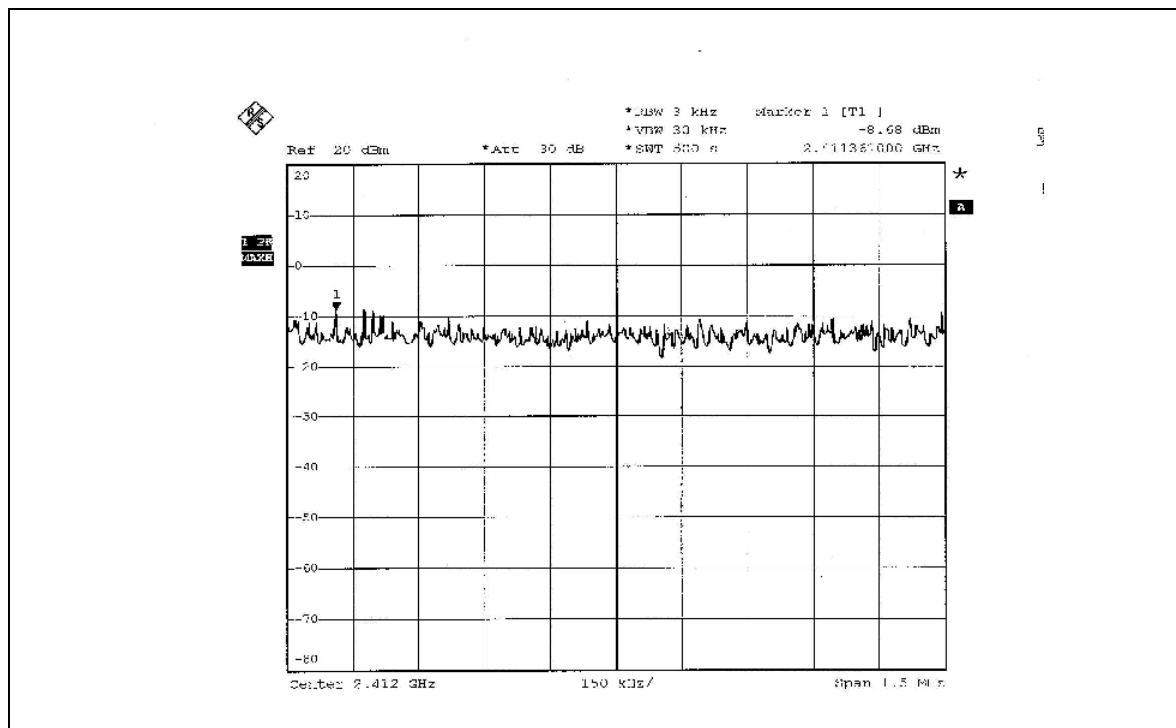
4.5.7 TEST RESULTS

802.11b DSSS MODULATION

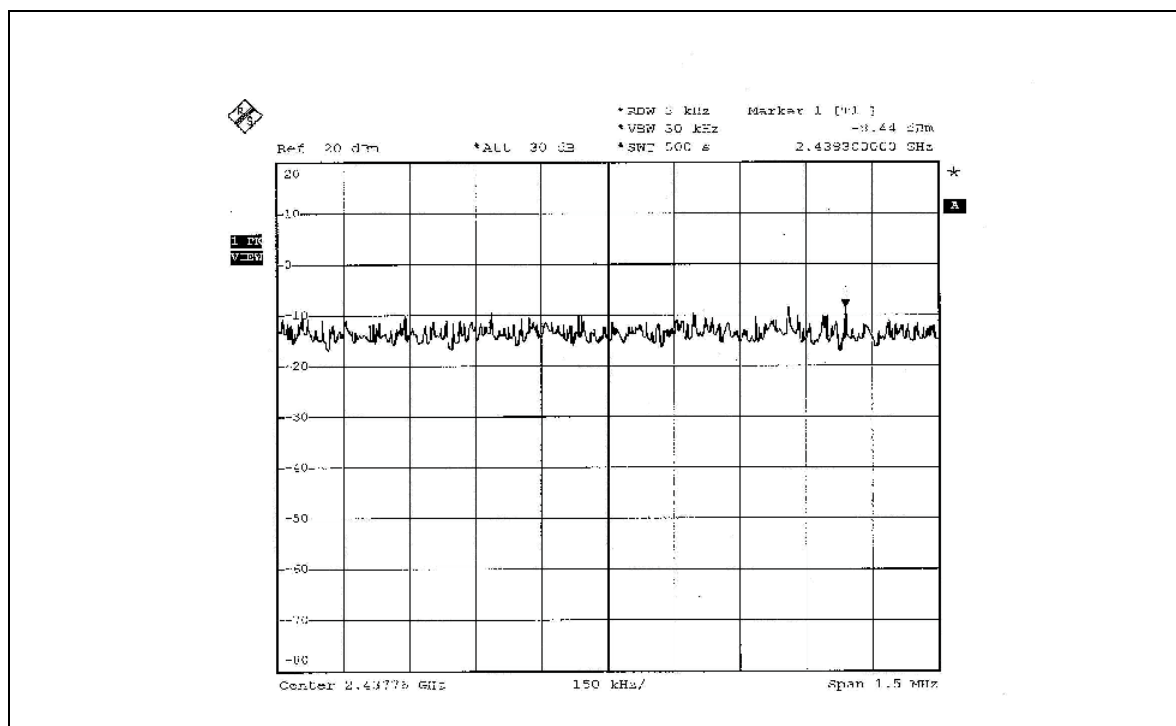
EUT	802.11g Wireless MIMO miniPCI Module	MODEL	WMD-360A
MODULATION TYPE	BPSK	TRANSFER RATE	1Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	26deg. C, 67%RH, 991hPa
TESTED BY	Match Tsui		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3 kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	2412	-8.68	8	PASS
6	2437	-8.44	8	PASS
11	2462	-8.26	8	PASS

CH1



CH6



*BW 3 kHz Marker 1 CH 1
 *VMW 30 KHz -8.26 dBm
 *SPAN 500 s 2.461998000 GHz

Ref 20 dBm *Att 30 dB

20
 -10
 0
 -10
 -20
 -30
 -40
 -50
 -60
 -70
 -80

Center 2.462 GHz 100 kHz/ Span 1.5 MHz

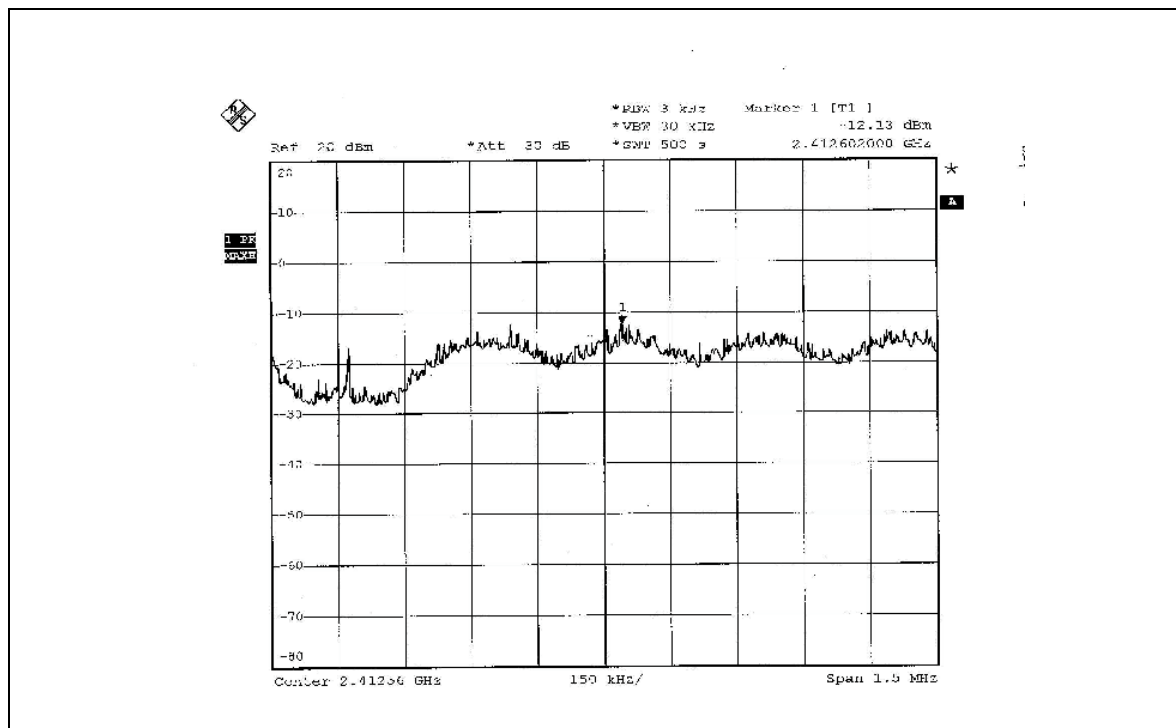


802.11g OFDM MODULATION_NORMAL MODE

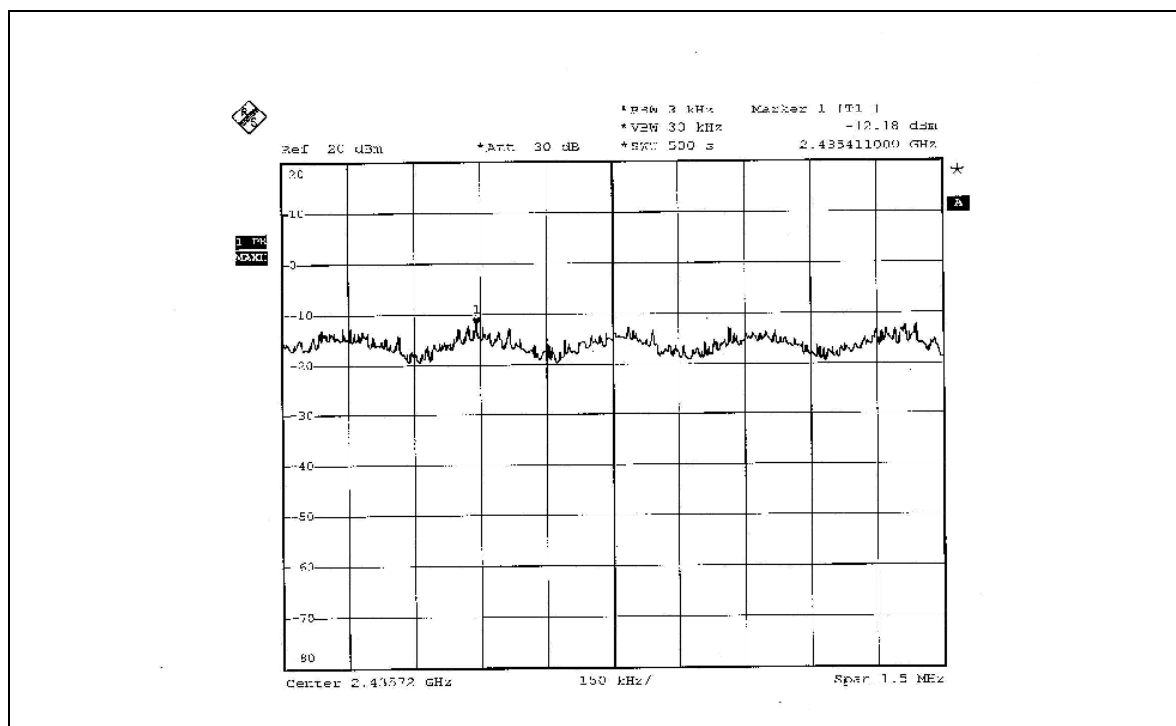
EUT	802.11g Wireless MIMO miniPCI Module	MODEL	WMD-360A
MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	26deg. C, 67%RH, 991hPa
TESTED BY	Match Tsui		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3 kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	2412	-12.13	8	PASS
6	2437	-12.18	8	PASS
11	2462	-12.39	8	PASS

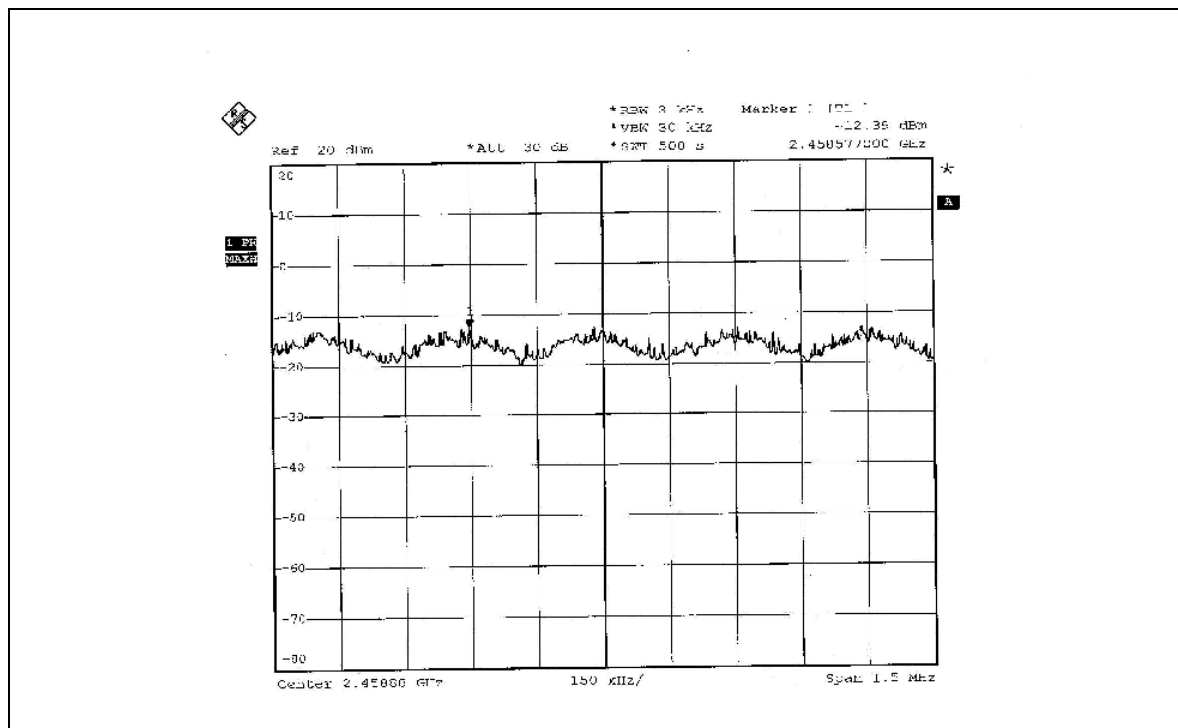
CH1



CH6



CH11



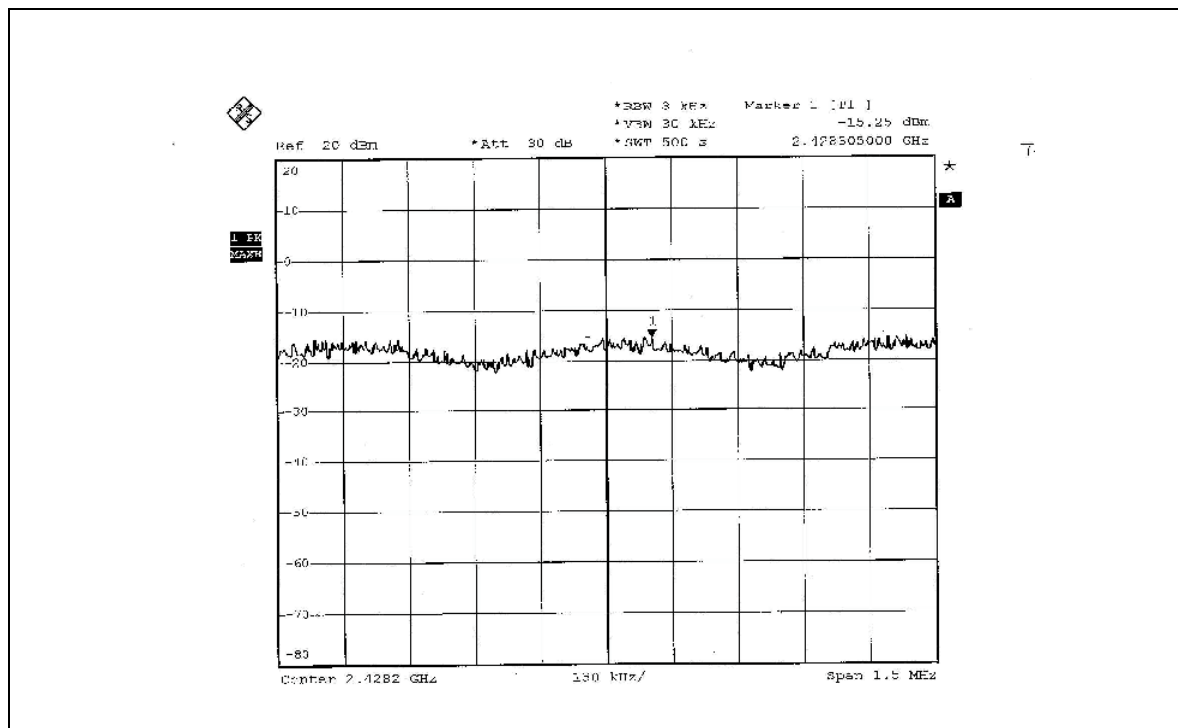


802.11g OFDM MODULATION_TURBO MODE

EUT	802.11g Wireless MIMO miniPCI Module	MODEL	WMD-360A
MODULATION TYPE	BPSK	TRANSFER RATE	12Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	26deg. C, 67%RH, 991hPa
TESTED BY	Match Tsui		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3 kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
6	2437	-15.25	8	PASS

CH6



4.6 BAND EDGES MEASUREMENT

4.6.1 LIMITS OF BAND EDGES MEASUREMENT

Below –20dB of the highest emission level of operating band (in 100kHz Resolution Bandwidth).

4.6.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
SPECTRUM ANALYZER	FSEK30	100049	Aug. 12, 2005

NOTE: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

4.6.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer via a low lose cable. Set both RBW and VBW of spectrum analyzer to 100kHz with suitable frequency span including 100MHz bandwidth from band edge. The band edges was measured and recorded.

The spectrum plots (Peak RBW=VBW=100kHz; Average RBW=1MHz, VBW=1kHz) are attached on the following pages.

4.6.4 DEVIATION FROM TEST STANDARD

No deviation

4.6.5 EUT OPERATING CONDITION

Same as Item 4.3.6



4.6.6 TEST RESULTS

The spectrum plots are attached on the following 18 images. D1 line indicates the highest level, and D2 line indicates the 20dB offset below D1. It shows compliance with the requirement in part 15.247(d).

802.11b DSSS MODULATION (DIPOLE AND PRINTED ANTENNA WITH TEST MODE 1)

NOTE 1: The band edge emission plot on page 82 shows 50.54dBc between carrier maximum power and local maximum emission in restrict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 113.19dBuV/m (Peak), so the maximum field strength in restrict band is $113.19 - 50.54 = 62.65$ dBuV/m, which is under 74dBuV/m limit.

The band edge emission plot on page 82 shows 56.69dBc between carrier maximum power and local maximum emission in restrict band (2.3864GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 105.61dBuV/m (Average), so the maximum field strength in restrict band is $105.61 - 56.69 = 48.92$ dBuV/m, which is under 54dBuV/m limit.

NOTE 2: The band edge emission plot on page 83 shows 51.61dBc between carrier maximum power and local maximum emission in restrict band (2.4876GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 112.61dBuV/m (Peak), so the maximum field strength in restrict band is $112.61 - 51.61 = 61.00$ dBuV/m, which is under 74dBuV/m limit.

The band edge emission plot on page 84 shows 58.27dBc between carrier maximum power and local maximum emission in restrict band (2.4880GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 105.09dBuV/m (Average), so the maximum field strength in restrict band is $105.09 - 58.27 = 46.82$ dBuV/m, which is under 54dBuV/m limit.

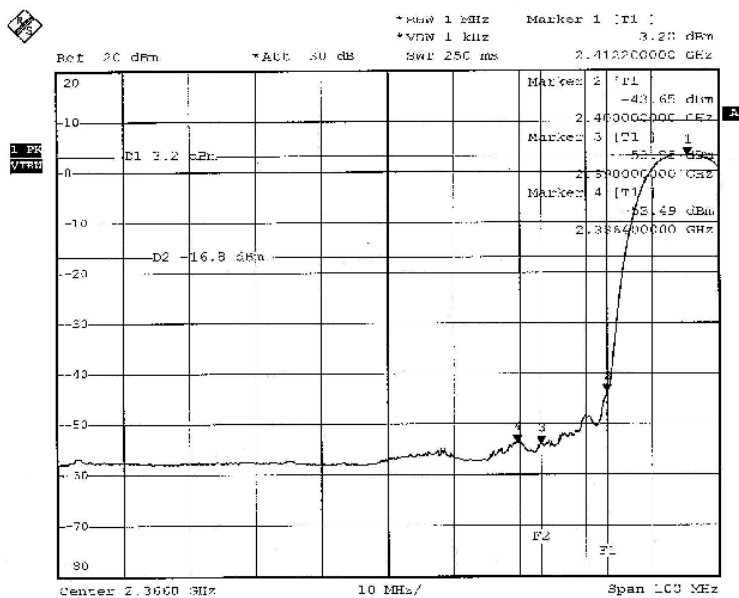
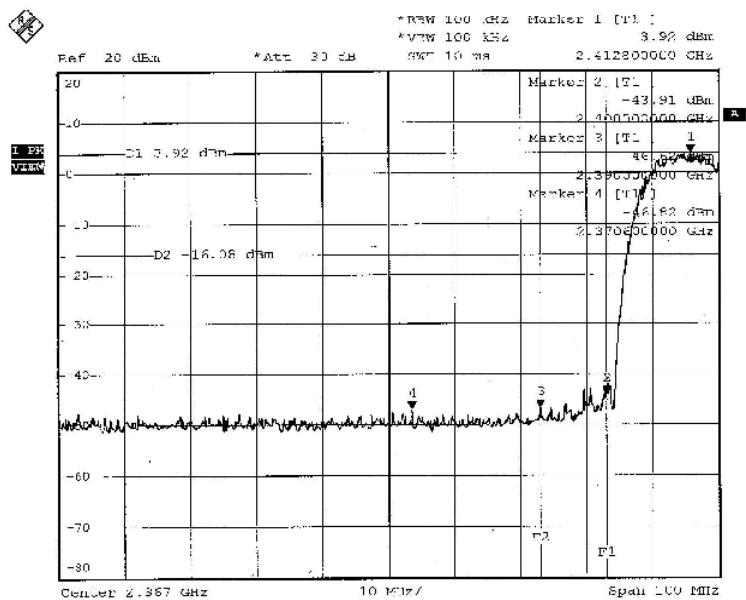
**802.11b DSSS MODULATION (DIPOLE ANTENNA WITH TEST MODE 2)**

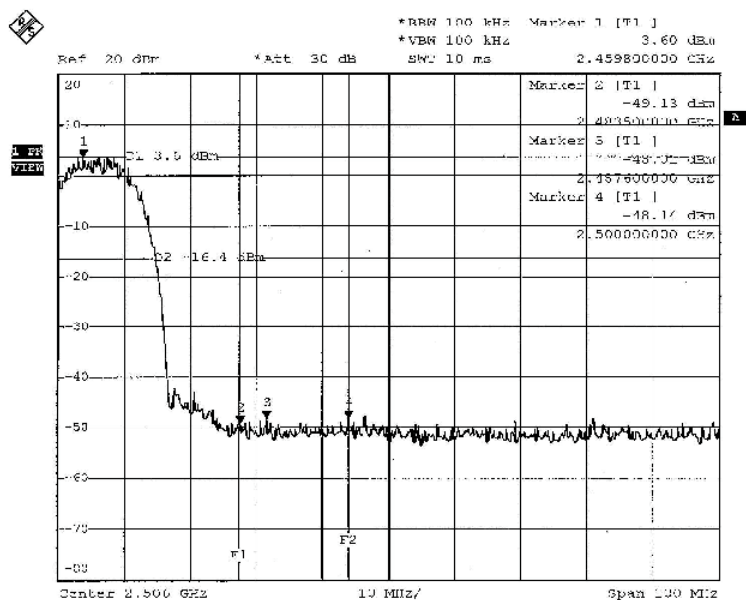
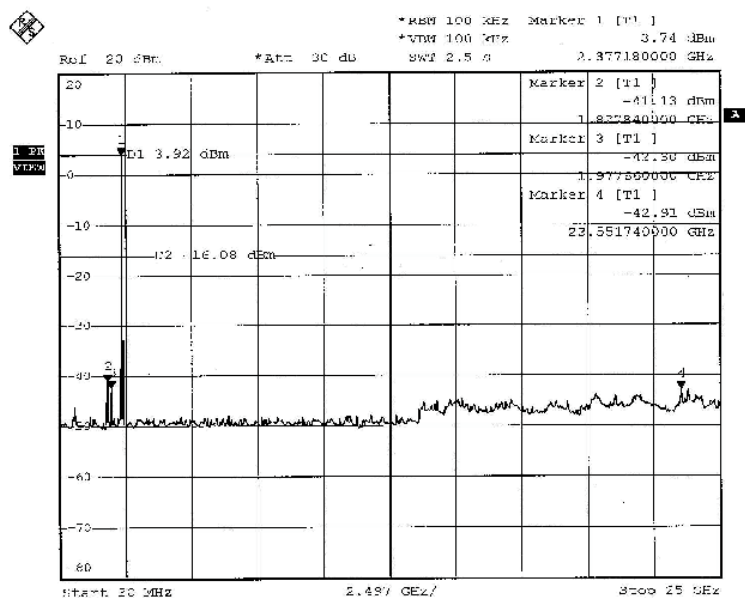
NOTE 1: The band edge emission plot on page 82 shows 50.54dBc between carrier maximum power and local maximum emission in restrict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 112.02dBuV/m (Peak), so the maximum field strength in restrict band is $112.02 - 50.54 = 61.48$ dBuV/m, which is under 74dBuV/m limit.

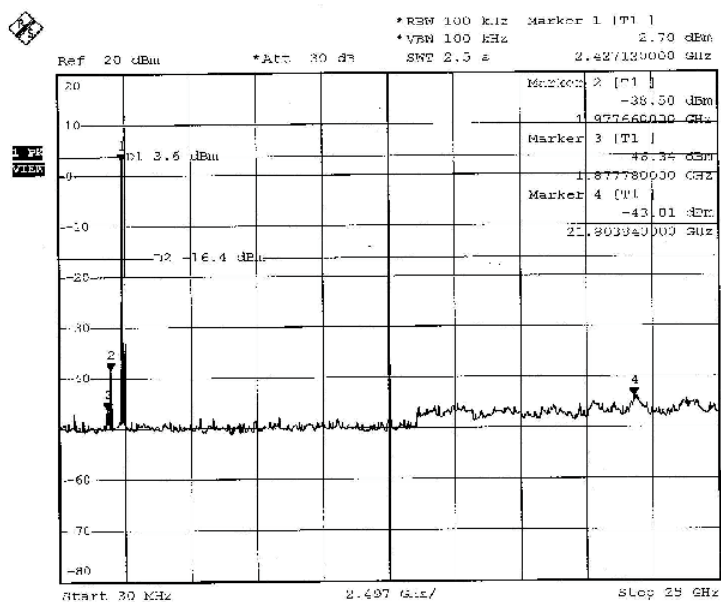
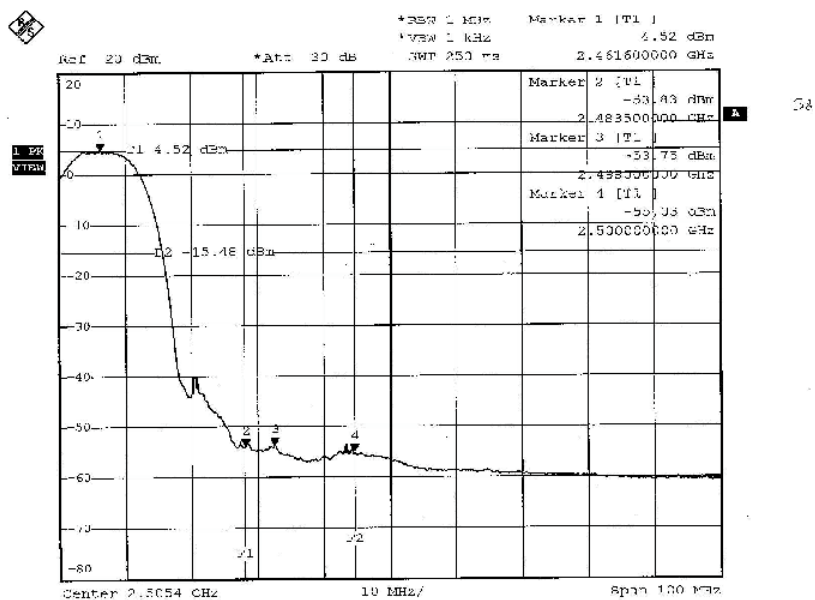
The band edge emission plot on page 82 shows 56.69dBc between carrier maximum power and local maximum emission in restrict band (2.3864GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 104.54dBuV/m (Average), so the maximum field strength in restrict band is $104.54 - 56.69 = 47.85$ dBuV/m, which is under 54dBuV/m limit.

NOTE 2: The band edge emission plot on page 83 shows 51.61dBc between carrier maximum power and local maximum emission in restrict band (2.4876GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 112.11dBuV/m (Peak), so the maximum field strength in restrict band is $112.11 - 51.61 = 60.50$ dBuV/m, which is under 74dBuV/m limit.

The band edge emission plot on page 84 shows 58.27dBc between carrier maximum power and local maximum emission in restrict band (2.4880GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 104.52dBuV/m (Average), so the maximum field strength in restrict band is $104.52 - 58.27 = 46.25$ dBuV/m, which is under 54dBuV/m limit.









802.11g OFDM MODULATION_NORMAL MODE (DIPOLE AND PRINTED ANTENNA WITH TEST MODE 1)

NOTE 1: The band edge emission plot on page 87 shows 43.82dBc between carrier maximum power and local maximum emission in restrict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 109.99dBuV/m (Peak), so the maximum field strength in restrict band is $109.99 - 43.82 = 66.17$ dBuV/m, which is under 74dBuV/m limit.

The band edge emission plot on page 87 shows 50.25dBc between carrier maximum power and local maximum emission in restrict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 99.79dBuV/m (Average), so the maximum field strength in restrict band is $99.79 - 50.25 = 49.54$ dBuV/m, which is under 54dBuV/m limit.

NOTE 2: The band edge emission plot on page 88 shows 45.88dBc between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 110.20dBuV/m (Peak), so the maximum field strength in restrict band is $110.20 - 45.88 = 64.32$ dBuV/m, which is under 74dBuV/m limit.

The band edge emission plot on page 89 shows 49.10dBc between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 101.32dBuV/m (Average), so the maximum field strength in restrict band is $101.32 - 49.10 = 52.22$ dBuV/m, which is under 54dBuV/m limit.

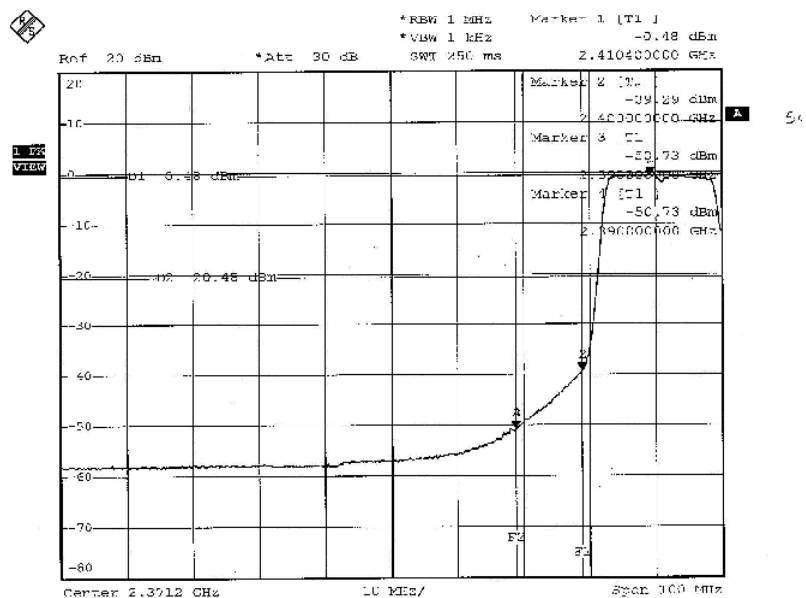
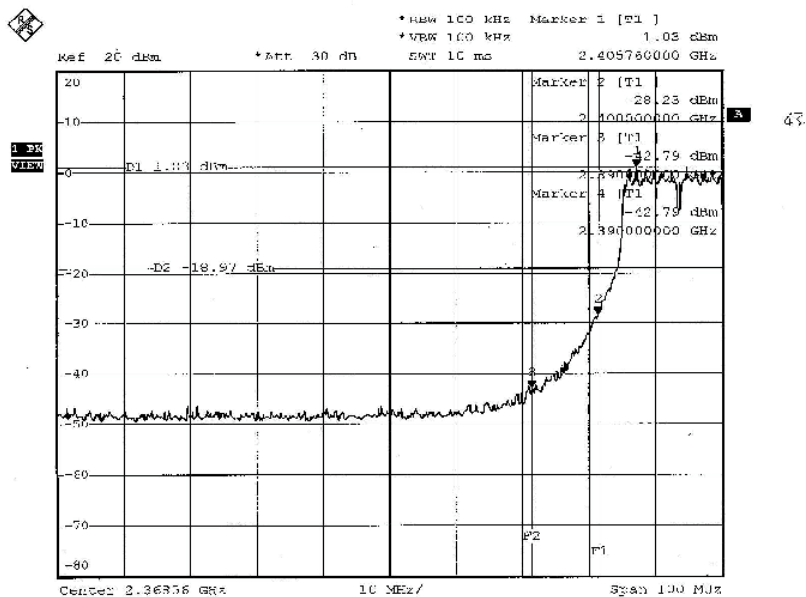
802.11g OFDM MODULATION_NORMAL MODE (DIPOLE ANTENNA WITH TEST MODE 2)

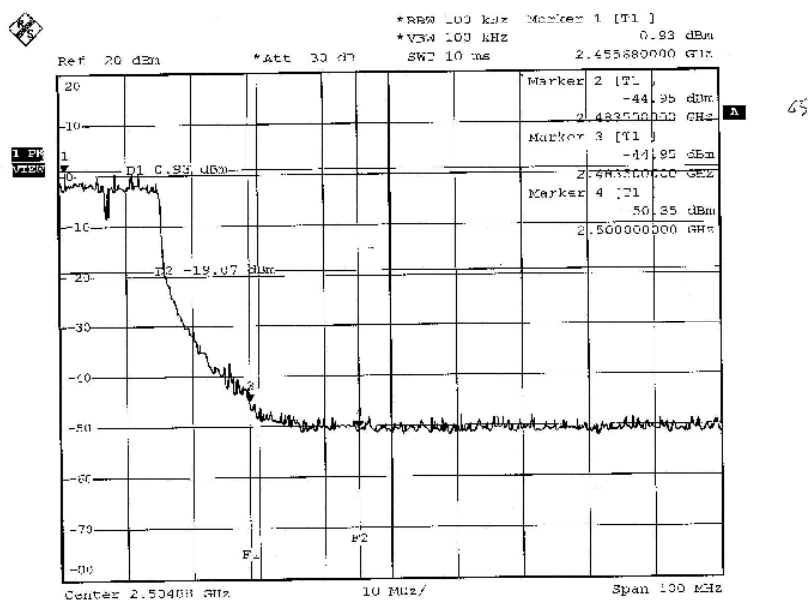
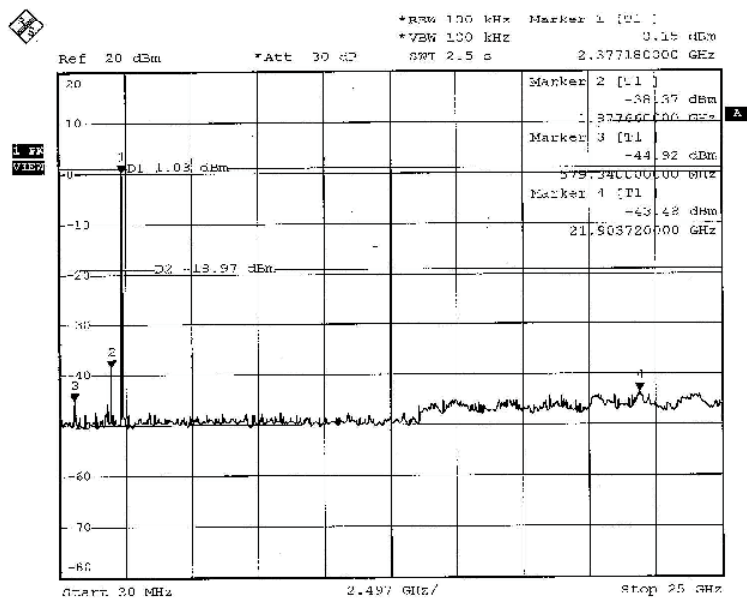
NOTE 1: The band edge emission plot on page 87 shows 43.82dBc between carrier maximum power and local maximum emission in restrict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 111.16dBuV/m (Peak), so the maximum field strength in restrict band is $111.16 - 43.82 = 67.34$ dBuV/m, which is under 74dBuV/m limit.

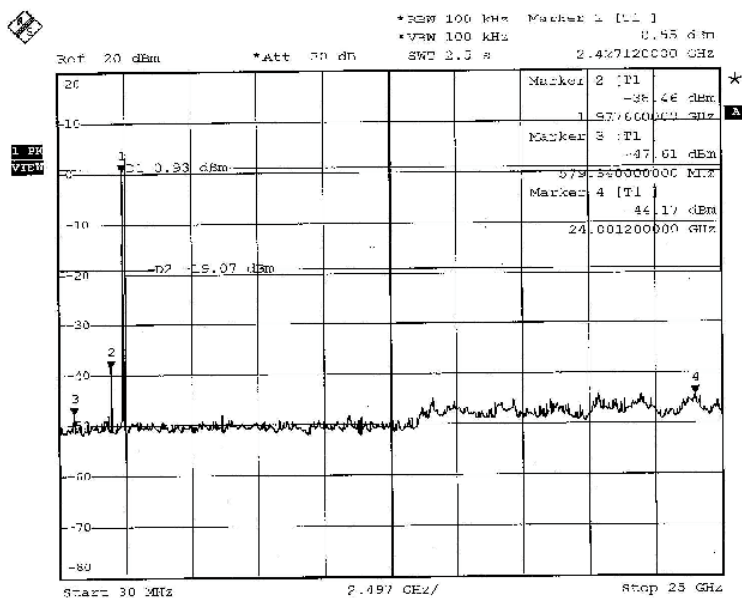
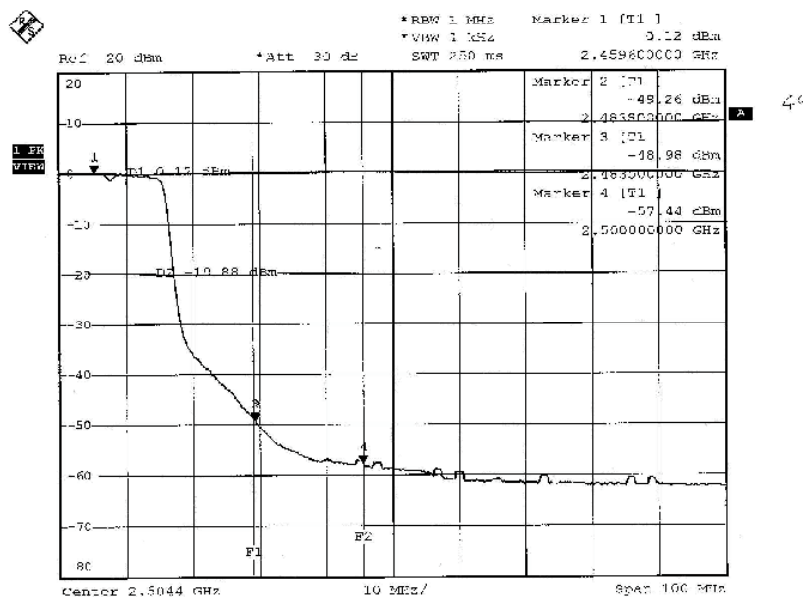
The band edge emission plot on page 87 shows 50.25dBc between carrier maximum power and local maximum emission in restrict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 101.04dBuV/m (Average), so the maximum field strength in restrict band is $101.04 - 50.25 = 50.79$ dBuV/m, which is under 54dBuV/m limit.

NOTE 2: The band edge emission plot on page 88 shows 45.88dBc between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 110.90dBuV/m (Peak), so the maximum field strength in restrict band is $110.90 - 45.88 = 65.02$ dBuV/m, which is under 74dBuV/m limit.

The band edge emission plot on page 89 shows 49.10dBc between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 100.13dBuV/m (Average), so the maximum field strength in restrict band is $100.13 - 49.10 = 51.03$ dBuV/m, which is under 54dBuV/m limit.









802.11g OFDM MODULATION_TURBO MODE (DIPOLE AND PRINTED ANTENNA WITH TEST MODE 1)

NOTE 1: The band edge emission plot on page 92 shows 46.01dBc between carrier maximum power and local maximum emission in restrict band (2.3876GHz). The emission of carrier strength list in the test result of channel 6 at the item 4.2.7 is 107.56dBuV/m (Peak), so the maximum field strength in restrict band is $107.56 - 46.01 = 61.55$ dBuV/m, which is under 74dBuV/m limit.

The band edge emission plot on page 92 shows 47.29dBc between carrier maximum power and local maximum emission in restrict band (2.3900GHz). The emission of carrier strength list in the test result of channel 6 at the item 4.2.7 is 98.38dBuV/m (Average), so the maximum field strength in restrict band is $98.38 - 47.29 = 51.09$ dBuV/m, which is under 54dBuV/m limit.

NOTE 2: The band edge emission plot on page 93 shows 48.15dBc between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 6 at the item 4.2.7 is 107.56dBuV/m (Peak), so the maximum field strength in restrict band is $107.56 - 48.15 = 59.41$ dBuV/m, which is under 74dBuV/m limit.

The band edge emission plot on page 94 shows 48.54dBc between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 6 at the item 4.2.7 is 98.38dBuV/m (Average), so the maximum field strength in restrict band is $98.38 - 48.54 = 49.84$ dBuV/m, which is under 54dBuV/m limit.

**802.11g OFDM MODULATION_TURBO MODE (DIPOLE ANTENNA WITH TEST MODE 2)**

NOTE 1: The band edge emission plot on page 92 shows 46.01dBc between carrier maximum power and local maximum emission in restrict band (2.3876GHz). The emission of carrier strength list in the test result of channel 6 at the item 4.2.7 is 108.36dBuV/m (Peak), so the maximum field strength in restrict band is $108.36 - 46.01 = 62.35$ dBuV/m, which is under 74dBuV/m limit.

The band edge emission plot on page 92 shows 47.29dBc between carrier maximum power and local maximum emission in restrict band (2.3900GHz). The emission of carrier strength list in the test result of channel 6 at the item 4.2.7 is 98.57dBuV/m (Average), so the maximum field strength in restrict band is $98.57 - 47.29 = 51.28$ dBuV/m, which is under 54dBuV/m limit.

NOTE 2: The band edge emission plot on page 93 shows 48.15dBc between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 6 at the item 4.2.7 is 108.36dBuV/m (Peak), so the maximum field strength in restrict band is $108.36 - 48.15 = 60.21$ dBuV/m, which is under 74dBuV/m limit.

The band edge emission plot on page 94 shows 48.54dBc between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 6 at the item 4.2.7 is 98.57dBuV/m (Average), so the maximum field strength in restrict band is $98.57 - 48.54 = 50.03$ dBuV/m, which is under 54dBuV/m limit.

